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- San Bernardino County Transportation Commission ■ San Bernardino County Transportation Authority
■ San Bernardino County Congestion Management Agency ■ Service Authority for Freeway Emergencies
-

Minute Action

AGENDA ITEM: 14

Date: July 1, 2009

Subject: Amendment No. 1 to Contract No. 06-045 with David Evans and Associates, Inc. for Construction Surveying Services for Interstate 215 Segments 1 and 2 in the City of San Bernardino

Recommendation:* Approve Amendment No. 1 to Contract No. 06-045 with David Evans and Associates, Inc. for Construction Surveying Services for Interstate 215 Segments 1 and 2 in the City of San Bernardino for an additional \$5,392,784.44 to increase the total contract value to \$6,694,503.44.

Background: **This is an amendment to an existing contract.** SANBAG executed a contract with David Evans and Associates, Inc. for construction surveying services for the I-215 5th Street Bridge project in 2006 for a total of \$1,301,719 of which \$118,338 was contingency. Within the scope of services was an option to add additional segments of the I-215 corridor as an amendment at a later date. Since the scope of this amendment is significantly larger than the original contract and there was an option as to whether to amend the David Evans and Associates, Inc. contract or recomplete the work, an agenda item was taken to the Board last year to confirm which direction to proceed. In April, 2008, the Board approved moving forward with an amendment to the existing contract with David Evans and Associates, Inc. for work on Interstate 215 Segments 1 and 2 instead of reCompleting for this additional work.

Construction on I-215 Segments 1 and 2 is currently scheduled to start in the fall of this year with the advertising period for this construction work already started in May, 2009. It is important to have the construction surveying consultant under contract prior to awarding a construction contract, so that the firm may have all plans and monuments in place and have adequate coordination time with the

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Approved
Board of Directors

Date: July 1, 2009

Moved:

Second:

In Favor:

Opposed:

Abstained:

Witnessed: _____

construction management consultant before the general construction contractor starts its work. This amendment increases the base contract by \$4,953,175.79, utilizing unspent funds from the 5th Street project and adds \$439,608.65 in contingency. This brings the total base contract value to \$6,136,556.79 with a total contingency of \$557,946.65, none of which has yet been released.

The funding for this contract will be through State Regional Improvement Funds (RIP). Any additional contract changes required to be in compliance with the criteria for these funds will be reviewed and approved by legal counsel and incorporated into the final version of the document prior to Board approval.

Financial Impact: Item is consistent with current Fiscal Year 2009/2010. TN 838

Reviewed By: This item was reviewed and unanimously recommended for approval by the Major Projects Committee on June 11, 2009.

Responsible Staff: Garry Cohoe, Director of Freeway Construction

SANBAG Contract No. 06-045-01

by and between

San Bernardino County Transportation Authority

and

David Evans and Associates, Inc.

for

Construction Surveying Services for I-215 5th Street Overcrossing and Segments 1 and 2**FOR ACCOUNTING PURPOSES ONLY**

<input checked="" type="checkbox"/> Payable	Vendor Contract # _____	Retention:	<input type="checkbox"/> Original
<input type="checkbox"/> Receivable	Vendor ID _____	<input type="checkbox"/> Yes _____ % <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Amendment

Notes:

Original Contract:	\$ <u>1,183,381</u>	Previous Amendments Total:	\$ <u>0</u>
Contingency Amount:	\$ <u>118,338</u>	Previous Amendments Contingency Total:	\$ <u>0</u>
		Current Amendment:	\$ <u>4,953,175.79</u>
		Current Amendment Contingency:	\$ <u>439,608.65</u>

Contingency Amount requires specific authorization by Task Manager prior to release.

Contract TOTAL → \$ 6,694,503.44

↓ Please include funding allocation for the original contract or the amendment.

<u>Task</u>	<u>Cost Code</u>	<u>Funding Sources</u>	<u>Grant ID</u>	<u>Amounts</u>
<u>838</u>	<u>5553</u>	<u>RIP</u>	_____	\$ <u>5,392,784.44</u>
_____	_____	_____	_____	\$ _____

Original Board Approved Contract Date:	<u>11/1/06</u>	Contract Start:	<u>11/1/06</u>	Contract End:	<u>1/1/10</u>
New Amend. Approval (Board) Date:	<u>7/1/09</u>	Amend. Start:	<u>7/1/09</u>	Amend. End:	<u>1/15/14</u>

If this is a multi-year contract/amendment, please allocate budget authority among approved budget authority and future fiscal year(s)-unbudgeted obligations:

Approved Budget Authority →	Fiscal Year: <u>09/10</u> \$ <u>1,700,000</u>	Future Fiscal Year(s) – Unbudgeted Obligation →	\$ <u>3,692,784.44</u>
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Is this consistent with the adopted budget? ☒ Yes ☐ NoIf yes, which Task includes budget authority? 8386045If no, has the budget amendment been submitted? ☐ Yes ☐ No**CONTRACT MANAGEMENT****Please mark an "X" next to all that apply:**
☐ Intergovernmental ☒ Private ☐ Non-Local ☒ Local ☐ Partly Local
Disadvantaged Business Enterprise: ☒ No ☐ Yes _____ %Task Manager: Garry CohoeContract Manager: Dennis Saylor

Garry Cohoe 6/4/09
Task Manager Signature Date

Dennis Saylor 6/3/09
Contract Manager Signature Date

Chief Financial Officer Signature Date

AMENDMENT NO. 1

AGREEMENT BETWEEN

SAN BERNARDINO ASSOCIATED GOVERNMENTS/
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY

AND

DAVID EVANS AND ASSOCIATES

FOR

CONSTRUCTION SURVEYING SERVICES, INTERSTATE 215 5TH STREET
BRIDGE AND SEGMENTS 1 AND 2

This AMENDMENT NO. 1 to CONTRACT NO. 06-045 entered into as of this First day of July, 2009, by the firm of David Evans and Associates (hereafter called CONSULTANT) and San Bernardino Associated Governments/San Bernardino County Transportation Authority (hereafter called SANBAG):

WITNESSETH:

WHEREAS, SANBAG, under SANBAG Contract No. 06-045 has engaged the services of CONSULTANT to provide Construction Surveying Services for the I-215, 5th Street Overcrossing Project with an option to provide the same services on other portions of the corridor; and

WHEREAS, the construction of I-215 Segments 1 and 2 is anticipated to start later this year and construction surveying is required for this new work effort; and

WHEREAS, SANBAG desires to exercise its option to have CONSULTANT perform construction surveying services for I-215 Segments 1 and 2; and

WHEREAS, the duration of these activities will extend beyond the current completion date of the existing contract.

NOW THEREFORE, the parties hereto do mutually agree to amend Contract No. 06-045 as follows:

1. Revise Article 1, Description of Services, to add Attachment "C" to the Services to be performed by CONSULTANT.

2. Replace Article 2.1, with the following:

“The Period of Performance by CONSULTANT under this Contract shall commence on November 1, 2006 and shall continue in effect until January 15, 2014 or until otherwise terminated or canceled as hereinafter directed, or unless extended by direction of SANBAG”.

3. Under Article 3, Contract Price and Principles, revise Section 3.2 to read as follows:

The total cost shall not exceed \$6,136,556.99 with a contingency of \$557,946.65 for a total contract cost of \$6,694,503.44. Services to be provided under the terms of this contract are to be provided on an as needed basis and compensated for as set forth in Attachment “A” for the 5th Street Overcrossing work and Attachment “C” for the work on Segments 1 and 2 which are incorporated herein by reference. Utilization of the contingency is not permitted unless directed in writing by SANBAG Project Manager. CONSULTANT’S fee for services is included in the total estimated contract cost and shall be based on a fixed percentage rate, as noted in Attachment “B” for the 5th Street Overcrossing and Attachment “C” for the work on Segments 1 and 2. CONSULTANT’s fee will be paid by SANBAG on an earned basis as set forth in Section 6.5.

4. Under Article 3, Contract Price and Principles, revise Section 3.3 to read as follows:

CONSULTANT’S overhead rates will be fixed, as agreed upon in Attachment “B” for the 5th Street Overcrossing and Attachment “C” for Segments 1 and 2 for the duration. The fixed overhead rates will not be subject to adjustment. Overtime and premium rates are not permitted without prior authorization from SANBAG.

5. Under Article 3, Contract Price and Principles, revise the first sentence of Section 3.6 to read as follows:

Any Services provided by the CONSULTANT not specifically covered by the Scope of Services (Attachment “A” for 5th Street Overcrossing and Attachment “C” for Segments 1 and 2) shall not be compensated without prior written authorization from SANBAG.

6. Under Article 7, add section 7.3 as follows:

The Cost Proposal for this project is subject to a post award audit. After any post award audit recommendations are received the Cost Proposal shall be adjusted by the Consultant and approved by the Contract Manager to conform to the audit recommendations. The Consultant agrees that individual items of cost identified in the audit report may be incorporated into the Agreement (Project Contract) at SANBAG’s sole discretion. Refusal by the Consultant to incorporate the audit or post award recommendations will be considered a breach of the Agreement terms and cause for termination of the Contract.

7. Except as amended by this Amendment, all other provisions of Contract No. 06-045 shall remain in full force and effect.

IN WITNESS THEREOF, the authorized parties have below signed:

**DAVID EVANS
AND ASSOCIATES, INC.**

**SAN BERNARDINO COUNTY
TRANSPORTATION AUTHORITY**

By: _____

By: _____


Paul M. Eaton, President
SANBAG Board of Directors

Date: _____

Date: _____

APPROVED AS TO FORM:

By: _____


Jean-Rene Basle
SANBAG Counsel

Contract 06-045 Amendment 1 ATTACHMENT “C”

**SCOPE OF SERVICES FOR
CONSTRUCTION SURVEYING**

I-215 5th Street Overcrossing Project and Other Potential Portions of I-215

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A. General Description

San Bernardino Associated Governments (SANBAG) requires Construction Surveying services to support construction of the Interstate 215 projects in San Bernardino County. The scope of services is divided into two separate sections. The first section is considered the initial scope of work for this contract, the second section consists of an add-on that may or may not be incorporated into the scope of work for this contract. The disposition of the second section of work will be evaluated and decided upon by SANBAG at a later date.

The first section is known as the I-215 5th Street Overcrossing (OC) Project Construction Contract. The Construction Contract includes construction of the 5th Street Overcrossing and adjacent roadway work. The project is described in more detail below.

The second section is known as Alternate A, Mainline Contracts. This potential add-on is for Construction Surveying services for Interstate 215 mainline segment project(s). These projects are described in more detail below.

SECTION ONE: I-215 5TH STREET OVERCROSSING (OC) PROJECT

The Interstate 215 Freeway Project is an existing freeway with mainline and interchange improvements developed by SANBAG in cooperation with the California Department of Transportation (Caltrans - District 8). The route extends through the City of San Bernardino from Interstate 10 through to existing State Route 30, new SR 210. Within the project corridor, the freeway project has been divided into four freeway segments. Within Segment One, an early bridge project is being constructed prior to the mainline segment. This early bridge project and adjacent roadway work is the 5th Street OC Project. The 5th Street OC Project is the first project to go out to construction. SANBAG is responsible for design and construction of this project. The 5th Street OC Project will consist of replacing the existing bridge over the existing freeway and railroad tracks and constructing a new bridge over both freeway and railroad in 2 stages. The new bridge and the roadway approaches will be constructed over an approximately 2 and ½ year period that will potentially overlap with Segment 3 and Segment 1 mainline work.

The total value of construction for this early bridge work is approximately \$23 Million (State and Measure I Funding will be utilized). This project and the mainline contracts below will be constructed under Caltrans Encroachment Permits.

SECTION TWO: ALTERNATE A, MAINLINE CONTRACTS

Construction Surveying services for some or all of the Interstate 215 mainline construction contracts is a potential add-on for this contract and constitutes *Alternate A*. These mainline contracts are described in more detail below.

Interstate 215, Segment One Mainline Contract:

- Construction of the Segment 1 Mainline and remaining structures.
 - Segment 1 is approximately 1.9 kilometers (1.1 miles) long. The freeway will consist of four (4) mixed flow lanes and one (1) high occupancy vehicle (HOV) lane in each direction. The limits of this project extend from south of Rialto

Avenue to south of Ninth Street within the City of San Bernardino.

- Construction of a new undercrossing structure at 2nd Street and 3rd Street along with bridge widenings and ramp bridges, sound walls, drainage improvements, and local street improvements.

Interstate 215, Segment Two Mainline Contract:

- Construction of the I-215 Segment 2 mainline and structures
 - Segment 2 is approximately 2.1 kilometers (1.3 miles) long. The freeway will consist of four (4) mixed flow lanes and one (1) high occupancy vehicle (HOV) lane in each direction. The limits of this project extend from south of Ninth Street to south of Massachusetts Avenue within the City of San Bernardino.
 - Construction of new overcrossing structures at Ninth Street, Baseline, 16th Street over the freeway and the adjacent BNSF railroad tracks, and a reconfigured I-215/SR 259 interchange.

It is anticipated that the mainline projects for Segments 1 and 2 of Interstate 215 will be constructed as described above. The following is the currently anticipated schedule for these segments:

Fifth Street OC: (Design/Construct By SANBAG)	Design complete: RTL: Start Construction: End Construction:	March, 2006 September, 2006 February, 2007 April, 2009
Segment 1: (Design by SANBAG)	Design complete: RTL: Start Construction: End Construction:	May, 2007 April, 2009 August, 2009 August, 2013
Segment 2: (Design by SANBAG)	Design complete: RTL: Start Construction: End Construction:	May, 2008 April, 2009 August, 2009 August, 2013

These segments will overlap in their construction schedules. The total value of construction for this work is approximately \$425 Million (Combinations of Federal, State and Measure I Funding will be utilized).

The 5th Street OC Project and Alternate A, as described by the plans and specifications, shall include construction of roadways, bridges, drainage facilities, retaining walls, and in some cases, sound walls. CONSULTANT will provide qualified personnel to perform a wide variety of Construction Surveying duties as outlined in this scope of services, Caltrans Quality Assurance Program Manual, and the Caltrans Survey Manual. CONSULTANT personnel will be assigned to the construction field office and will provide assistance to and work under the direction of SANBAG Resident Engineers.

The SANBAG Contract Manager for this contract will be:

Mr. Garry Cohoe
Director of Freeway Construction

SANBAG has selected Fluor Daniel as Program Manager for the Measure I Valley Major Projects. This Project is part of that program. As part of the overall SANBAG/Fluor Program Management staff, SANBAG has also designated a Construction Manager and several Segment Managers to coordinate all construction activities. The CONSULTANT shall report to and receive direction from SANBAG through the Contract Manager, or his designees. The SANBAG Construction Manager is responsible for coordination of all SANBAG construction activities and for coordinating the efforts of the total construction team. The SANBAG Segment Managers will be the main contact and primary source of information between SANBAG, Caltrans, cities, outside agencies, supporting consultants and the public for the individual construction projects.

B. Personnel and Performance Requirements

CONSULTANT will furnish a Project Manager to coordinate CONSULTANT operations with Caltrans and SANBAG. The Project Manager will be responsible for all matters related to CONSULTANT personnel and operations. Personnel qualifications and responsibilities are listed in the last section of the Scope of Services.

CONSULTANT will furnish surveying crew(s) to perform construction surveys for the projects. The number of survey crew(s) assigned to the project will vary throughout the duration of the construction contract. It is anticipated that a minimum of one (1) survey crew will be required throughout the construction. Additional crews may be required to provide support for construction activities. CONSULTANT will be notified in advance of a change in project requirements. The duration of assignments could vary from a minimum of a few days to the full term of the project. CONSULTANT personnel will be assigned as needed by the Resident Engineer(s) to meet the schedule of the construction contractor.

It is the intent of SANBAG and Caltrans to maintain a consistency of construction survey quality throughout each phase of the project. Therefore, CONSULTANT is encouraged to provide the same field personnel for the duration of construction. It is important that the Field Party Chief(s) assigned to the project be completely familiar with the survey requirements and the assignments for the project.

Resident Engineers will have the authority to increase, reduce, or eliminate CONSULTANT hours dependent on the schedule and the requirements of the construction contractor. On days when work is not performed by the construction contractor, such as rainy or unsuitable weather days, CONSULTANT will not provide services unless authorized by the Resident Engineer. When possible, the Resident Engineer will provide 8 hours advance notice if CONSULTANT services are not required.

Construction surveying will not be performed when conditions such as weather, traffic, and other factors prevent safe and efficient operation.

Resumes of CONSULTANT personnel and certification must be submitted to SANBAG for review. CONSULTANT personnel must be approved by SANBAG prior to assignment to a project. SANBAG and CONSULTANT will have the responsibility of determining the quality and quantity of work performed by CONSULTANT personnel. If, at any time, the level of performance by CONSULTANT personnel is below expectations, SANBAG may release the survey crew member and request that another be assigned (as needed).

If CONSULTANT's survey crew personnel assigned to the project is on a leave of absence, the Project Manager will provide an equally qualified replacement(s) until the original employee(s) returns to work. The replacement will be required to meet all the requirements of the permanently assigned employee.

All personnel will be knowledgeable of, and comply with, all applicable local, Caltrans, and federal regulations; cooperate and consult with SANBAG and Caltrans officials during the course of the contract; and perform other duties as may be required to assure that the construction is being performed in accordance with the project plans and specifications. CONSULTANT's personnel will keep records and document the work as directed by SANBAG's Resident Engineers.

CONSULTANT will assist in obtaining compliance with the labor standards provisions of the projects and the related wage determination decisions of the Secretary of Labor.

CONSULTANT personnel will assist SANBAG, City, and Caltrans in obtaining compliance with the safety and accident prevention provisions of the projects. City and Caltrans will retain jurisdictional control for traffic control.

CONSULTANT will assist SANBAG and/or Caltrans in obtaining compliance with the equal opportunity provisions of the projects.

All services required hereunder will be performed in accordance with Caltrans regulations, policies, procedures, manuals, and standards.

C. Descriptions of Required Services

CONSULTANT shall perform construction surveying services, field calculations, and home office calculations to support construction of the projects. CONSULTANT may be requested to review available survey data, construction plans, and right-of-way plans to confirm compatibility and to identify discrepancies prior to and during construction of proposed projects. The Resident Engineer will assign survey work to the CONSULTANT by issuing a "Request for Survey Services". Requests may include, but not be limited to, the following types of surveys and related services:

I. Construction Surveys

CONSULTANT shall assist the Resident Engineer in all phases of construction staking and calculations as needed.

- a. Survey calculations and adjustments shall be performed with established and computed coordinates based on the California Coordinate System.
- b. Cross-section data collection shall be performed by conventional and terrain line interpolation survey methods.
- c. Survey data will include topography, cross-section, and other survey data in computer formats compatible with the Caltrans computer survey and design systems.
- d. Prepare and maintain survey documents. Survey documents include survey field notes, maps, drawings, and other survey documents.
- e. Perform construction staking, including but not limited to:
 - Utility relocations.
 - Clearing limits.
 - Slope staking.
 - Storm drain, sanitary sewer, and irrigation systems.
 - Drainage structures.
 - Curbs, gutters, and sidewalk.
 - Horizontal and vertical control for structures and portions of structures (bents, abutments, wingwalls, etc.).
 - Rough grade.
 - Finish grade.
- f. Monitor for settlement if required.
- g. Global Positioning Satellite (GPS) equipment shall be made available if required by SANBAG.

II. Grid Grades

Grid grade data shall provide pavement elevations at the station line, the left edge of pavement, the right edge of pavement, and the right edge of travel way at 25 foot intervals for travel lanes.

III. Open Ended Traverses and Profile Data Sheets

Separate open-ended traverse calculations and point maps shall depict plan data for station lines, utility lines, wall layout lines, and abutment/bent alignment. Specific information to be shown will be part numbers, coordinates, bearings, and curve data.

Profile data sheets are required for all profiles shown on the plans identifying vertical design elements such as grade, point of intersection (PI) location, beginning of vertical curve (BVC) location, end of vertical curve (EVC) location, and curve length.

IV. Three Line Profiles

Separate profile plots are required for the left edge of pavement, the right edge of pavement, and the edge of shoulder for all travel lanes.

V. Right of Way Lines

a. Existing right of way and easements will be established from Caltrans' record information and existing monumentation.

- Right of way monumentation shall be renewed and restored in accordance with Section 10.4 of the Caltrans "Survey Manual" and the State of California Land Surveyor's Act.
- Corner records and records of surveys shall be prepared and filed in accordance with Chapter 10 of the "Caltrans Surveys Manual" and the State of California Land Surveyor's Act.

- Perpetuate existing monumentation.

Includes restoring, renewing, referencing, and resetting existing boundary related monumentation. In addition, stake areas where construction disturbs the existing right of way, preparing and filing required maps and records.

b. New right of way and easements will be established from plans, right of way maps, utility drawings, and Caltrans record information, and existing monumentation.

- Right of Way Surveys

Includes research and preparation filing of required maps and records. In addition, locate and set monuments for right of way and easement lines, staking for right of way and easement fences.

- Final monumentation

Includes setting of centerline points of control upon completion of construction.

VI. Special Design – Data Surveys

Includes drainage, utility, and surveys required for special field studies.

VII. Control Survey

Includes project control surveys, aerial mapping control surveys, horizontal and vertical control surveys. In addition control surveys will include restoration, renewal, reference, relocation, and resetting of existing control monumentation. The CONSULTANT will be required to provide horizontal and vertical control at the end of each bridge.

VIII. Topographic Surveys

Topographic surveys will normally be compiled by ground survey methods only.

D. Standards

All surveys shall be performed in accordance with the current Caltrans "Survey Manual" and its revisions, as well as Caltrans District 8 "Standard Staking Procedures Manual". Work not covered by the manuals shall be performed in accordance with Caltrans direction and accepted professional surveying standards.

Surveys performed by CONSULTANT shall conform to the requirements of the Land Surveyor's Act. In accordance with the Land Surveyor's Act, "responsible charge" for the work shall reside with the Licensed Land Surveyor or a pre-January 1, 1982, Registered Professional Civil Engineer in the State of California.

Unless otherwise specified in the survey request, control surveys shall conform to second order (modified) accuracy standards as specified in the Caltrans "Survey Manual".

Additional standards for specific survey work may be included in the applicable request for survey. Such standards supplement the standards specified herein. If additional standards conflict with the standards specified herein, the "Survey Request's" standard shall govern.

The Resident Engineer and SANBAG shall decide all questions that may arise as to the quality or acceptability of work performed and deliverables furnished under this contract.

E. Availability and Work Hours

The typical workday includes all hours worked by SANBAG's construction contractor. The construction contractor's operations may be restricted to specific hours during the week. In such cases, the contractor's hours will become the normal workday for CONSULTANT personnel. On days when work is not performed by the construction contractor (rainy or unsuitable weather days) CONSULTANT will not provide services unless authorized by the Resident Engineer. When possible, the Resident Engineer will provide eight (8) hours advance notice if CONSULTANT services are not required.

Unless otherwise directed by SANBAG, the normal workweek will consist of forty (40) hours. In some cases, overtime may be required. However, overtime will only be worked when approved by SANBAG. Most construction survey work will be required on an as needed basis as outlined in the "Survey Request".

Once the "Notice to Proceed" is issued, CONSULTANT will immediately begin all construction surveying. Once services begin, CONSULTANT will proceed diligently until all required services have been satisfactorily completed.

Construction surveying will not be performed when conditions (such as weather, traffic, and other factors) prevent safe, efficient operations.

F. Equipment and Materials Provided by Consultant

CONSULTANT and staff shall have adequate equipment and supplies to complete the required survey work. Equipment and supplies shall, include, but not be limited to:

a. Survey vehicles:

Survey vehicles will be suitable to perform the required work in varying terrain and conditions encountered on the project. Vehicles shall be fully equipped with all necessary tools, instruments, supplies, and safety equipment required to perform the work accurately, efficiently, and safely. Vehicles shall be equipped with a flashing yellow beacon light.

b. Data Processing Systems:

Data processing systems shall include hardware and software to:

- Performing survey and staking calculations from the design plans and specifications;
- Reduce survey data collected with conventional and total station survey systems;
- Perform network adjustments for horizontal and vertical control surveys;
- Format survey data to be compatible with the Caltrans computer survey and data system.

c. Drafting equipment and supplies.

d. Digital calculators.

e. Hand tools as appropriate for the requested survey work.

f. Traffic cones (minimum 25). Traffic cones shall be 28 inches in height (minimum).

g. Traffic control devices as required to perform the requested survey work. Traffic control devices include signs, sign bases, flags, and hand held signs.

h. Leveling instruments and equipment:

- Self-leveling level. Precision: standard deviation in one mile of double run leveling 0.005 feet or less.
- Suitable level rods for the work to be performed.

i. Distance measuring instruments and equipment:

- Electronic distance measurer (EDM). Precision: standard deviation 3 mm plus 3 PPM, or less; Range: Minimum one mile under average atmospheric conditions.
- Prisms, sufficient to perform the required work.
- Tapes; steel, cloth.

j. Angle measuring instruments and equipment:

- Theodolite for non-control surveys; Precision: direct circle reading to three seconds, or equivalent, horizontal and vertical.
- Targets as required to perform the work.

k. When required for efficient survey operations, total station survey systems consisting of an electronic angle measuring instrument, EDM, and electronic data collector shall

be provided. The angle measuring instruments and EDM shall conform to the requirements for the equipment previously listed.

- l. Radio or cellular communications equipment for communication between field office and field crews.
- m. Caltrans manuals, standards, forms, and other policies and procedures to be followed to perform the required work.

G. Materials Provided by SANBAG/Caltrans:

SANBAG/Caltrans will provide CONSULTANT with the following:

- a. Approved project plans and special provisions for the project.
- b. Magnetic SANBAG logos to be affixed to CONSULTANT vehicles.

H. Basis for Consultant's Survey

SANBAG will designate the existing horizontal and vertical control monuments that are the basis of CONSULTANT performed surveys. SANBAG will provide the California Coordinate System values and/or elevation values for these monuments. CONSULTANT shall adjust CONSULTANT performed surveys to be the designated control monuments and the values.

I. Survey Safety

In addition to the requirements specified elsewhere in this contract, the following shall apply:

- a. CONSULTANT will conform to the safety provisions of the Caltrans "Construction Manual".
- b. CONSULTANT personnel shall wear proper Personal Protective Equipment (PPE) at all times while working in the field. Minimum PPE for the project is as follows:
 - Hard hat with proper suspension.
 - Orange vest with reflective tape.
 - Sleeved shirt.
 - Long pants.
 - Leather boots with ankle support and rubber soles.
- c. CONSULTANT will provide appropriate safety training for all CONSULTANT personnel. Training should include information on safety when working on or near highways.
- d. All safety equipment shall be provided by CONSULTANT.

J. Monument Markings

Monuments established by CONSULTANT shall be marked by CONSULTANT with Caltrans furnished disks, plugs, tags. In addition, CONSULTANT shall identify CONSULTANT established monuments by tagging or stamping the monuments with the license or registration number of CONSULTANT'S surveyor who is in "responsible charge" of the work.

K. Deliverables

Unless otherwise specified in the survey request, the deliverables shall conform to the following:

- a. Survey points, lines, and monuments shall be established, marked, identified, and referenced as required by survey request and requirements herein.
- b. Survey notes, drawings, calculations, and other survey documents and information shall be completed as required by the survey request and the requirements herein.
- c. All original survey documents resulting from this contract, including original field notes, adjustment calculations, final results, and appropriate intermediate documents, shall be delivered to the Resident Engineer and shall become the property of SANBAG. A copy of all survey documents furnished by SANBAG shall be retained by CONSULTANT for future reference.

When the survey is performed with a total station survey system, the original field notes shall be a hard copy in a readable format of the data (observations) as originally collected and submitted by the survey party. The hard copy shall be signed by the Party Chief. If the Party Chief is not licensed, the person in "responsible charge" will be required to sign.

- d. Deliverables to the Resident Engineer shall follow the format specified below:
 - Horizontal Control
 - Alpha numeric hard copy point listing with adjusted California Coordinate System northing and eastings and the appropriate descriptions.
 - Vertical Control
 - Alpha numeric hard copy benchmark listing with adjusted elevations compatible with the design datum.
 - Topography
 - Alpha numeric hard copy listing, hard copy drawing, and computer aided drawing and design (CADD) digital drawing. The CADD drawing shall be provided on magnetic tape or disks in Intergraph IGDS version 8.8 format. Tapes and disks shall be compatible with Caltrans computer system. Topography symbology shall conform to the Caltrans "Drafting and Plan Manual".
 - Cross – Section Data

Data collection method used to collect cross-section data and the coding (feature description) of terrain data for cross-sections shall conform to the survey request requirements. Deliverables shall depend on the data collection method as follows:

1. Conventional Cross – Sections (each cross – section):

For each cross - section and alpha numeric listing, a hard copy drawing, and a computer formatted file compatible with the Caltrans computer system. Computer formatted cross – sections shall be provided on magnetic tapes or disks compatible with the Caltrans computer system.

2. Terrain Line Interpolation Cross – Section Data (each terrain line interpolation survey):

Terrain line interpolation cross – sections shall include an alpha numeric listing, a hard copy plan view drawing of the terrain lines, and a computer input file. The computer input file shall be provided on magnetic tape or disks and shall be in a format compatible with the Caltrans Terrain Line Interpolation computer program.

e. Data Collector Data

If specified in the survey request, the raw data from the data collector shall be provided in a format conforming to the survey request requirements

f. Other

As specified in the survey request.

L. Personnel Qualifications and Responsibilities

CONSULTANT personnel shall be capable of performing the types of surveying work described above in "Description of Required Services" with minimal instruction.

a. Project Manager

Minimum qualifications for the position of Project Manager shall be as follows:

- Four (4) years project management experience on similar highway construction projects.
- Licensed Surveyor or pre-January 1, 1982, Registered Professional Engineer in the State of California.
- Ability to use typical computer programs for word processing and spreadsheets.
- Accessible to the Resident Engineer and SANBAG at all times during normal working hours as specified in this Scope of Services.

Under the direction of the Resident Engineer and SANBAG the project manager will be responsible for:

- Review, monitor, train, and provide general direction for CONSULTANT survey personnel.
- Assign personnel to projects on an as-needed basis.
- Administer personal leave, subject to approval of the Resident Engineer.
- Prepare monthly reports for delivery to the SANBAG project manager.

b. Field Party Chiefs

- Minimum qualifications for the position of Party Chief shall meet at least one of the following licensing requirements:
 1. A licensed Land Surveyor in the State of California.
 2. A pre-January 1, 1982, Registered Professional Civil Engineer in the State of California
 3. An experienced surveyor who serves as chief under the direction or supervision of a person who is a licensed Land Surveyor or pre-January 1, 1982, Registered Professional Civil Engineer in the State of California. The direction or supervision shall place the supervisor in "responsible charge" of the work. "Responsible Charge" is defined in Chapter 15 of the Business and Professions Code (the Land Surveyor's Act) and Title 16, Chapter 5, of the California Administrative Code (regulations adopted by the Board of Registration for Professional Engineers and Land Surveyors).
- Two (2) years survey experience on similar highway construction projects.
- Thorough knowledge of construction survey practices and the ability to read and interpret plans and specifications.
- Ability to make effective decisions concerning field problems and work in progress.
- Familiarity with typical coordinate geometry computer programs.
- Familiarity with safety requirements for surveying near traffic.

Under the direction of the Resident Engineer, the Party Chiefs will assume the following responsibilities:

- Perform construction staking services for highway construction.
- Administer day to day activities for the survey party.
- Perform analytical survey calculations for items such as grading, horizontal and vertical control, right of way, and minor in-field design.
- Maintain continuous communication with the Resident Engineer, field personnel, and construction administration staff.

c. Survey Crews

Minimum qualifications for survey crew members shall be as follows:

- One (1) year survey experience on similar highway construction projects.
- Fundamental knowledge of construction survey practices and the ability to read and interpret plans and specifications.
- Ability to assist Party Chiefs and office personnel in all required surveying work.
- One survey crew member must have the ability to assume temporary leadership of the survey party in the absence of the Party Chief.

Under the direction of the Resident Engineer and the Party Chief, the survey crew members will assume the following responsibilities:

- Perform basic calculations to support highway construction staking.
- Maintain continuous communication with Party Chiefs and office personnel.

SANBAG
Alternate A Mainline Contract Staffing Plan
David Evans and Associates, Inc.

May 12, 2009

David Lewis and Associates, LLC.																											
Segment 1 Mainline					2009				2010				2011				2012				2013						
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total	Rate	Labor	OH	10% Fee	Total
Project Manager				5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	390	85.00	33,150.00	57,913.05	9,106.31	100,169.36
QA/QC Manager				5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	390	65.00	25,350.00	44,266.45	6,963.65	76,600.10
PLS Party Chief				50%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	3,536	49.00	173,264.00	302,692.21	47,596.62	523,551.83
Certified Party Chief				90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	7,020	47.00	328,940.00	576,405.18	90,834.52	996,979.70
Sr. Chairman				75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	5,950	42.00	245,700.00	429,237.90	67,480.79	742,431.68
Office Support				5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	390	50.00	19,500.00	34,066.50	5,356.65	58,923.15
2,498,655.82																											
Segment 2 Mainline					2009				2010				2011				2012				2013						
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Total	Rate	Labor	OH	Fee	Total
Project Manager				5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	442	85.00	37,570.00	65,634.79	10,320.48	113,525.27
QA/QC Manager				5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	442	85.00	28,730.00	50,191.31	7,892.13	86,813.44
PLS Party Chief				90%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	4,316	49.00	211,484.00	369,462.56	58,094.65	639,041.20
Certified Party Chief				90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	7,800	47.00	366,600.00	640,460.20	100,705.02	1,107,765.22
Sr. Chairman				75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	6,830	42.00	278,460.00	486,469.62	76,492.96	841,422.58
Office Support				5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	478	50.00	23,910.90	41,772.34	6,568.32	72,251.57
2,860,809.28																											

- San Bernardino County Transportation Commission ■ San Bernardino County Transportation Authority
■ San Bernardino County Congestion Management Agency ■ Service Authority for Freeway Emergencies

Minute Action

AGENDA ITEM: 15

Date: July 1, 2009

Subject: Cooperative Agreement No. C09-216 with the City of San Bernardino for reimbursement of sewer relocation design work for Interstate 215 Segments 1, 2 and 5 in the City of San Bernardino

Recommendation:* Approve Cooperative Agreement No. C09-216 with the City of San Bernardino for reimbursement of sewer relocation design work up to \$300,000 for Interstate 215 Segments 1, 2, and 5 in the City of San Bernardino.

Background: This is a new cooperative agreement with the City of San Bernardino. SANBAG has a design contract with AECOM to prepare the plans, specifications, and estimate for the Interstate 215 (I-215) Segments 1 and 2 project as well as a similar design contract for the I-215 Segment 5 project. AECOM's contract work includes identifying utilities that need to be relocated. The various utility companies are notified when they have facilities that needed to be relocated, and these companies prepare relocation plans which are then reviewed by AECOM to confirm that they no longer interfere with the new I-215 work. For the most part, the cost of utility relocation design and construction is covered under utility agreements between the utility companies and Caltrans, who has acted as utility coordinator for the I-215 corridor. In the case of the sewer facilities, the utility company is the City of San Bernardino. Due to a variety of factors, there were delays in getting a utility agreement executed between Caltrans and the City of San Bernardino. In order to keep the overall project schedules on track, SANBAG staff coordinated with the City of San Bernardino staff to have AECOM execute the design of the sewer relocations through the contingency remaining in the SANBAG design contracts with an option to then submit these costs later for reimbursement from the City once they had their reimbursement agreement in place with Caltrans. Since the City of San Bernardino has now

Approved
Board of Directors

Date: July 1, 2009

Moved: *Second:*

In Favor: *Opposed:* *Abstained:*

Witnessed: _____

executed a utility agreement with Caltrans and the actual work associated with the relocations has been more extensive than originally estimated, this new cooperative agreement is now being exercised whereby SANBAG will request reimbursement from the City of San Bernardino for the relocation design work of AECOM. The City of San Bernardino is now able to submit those costs to Caltrans for reimbursement through its utility agreement with Caltrans. The cost for the relocation design work for the three segments is estimated at \$300,000.

In conjunction with this agenda item for the cooperative agreement with the City of San Bernardino, a contract amendment with AECOM is also being submitted for approval. The contract amendment for the I-215 Segment 1 and 2 will be for the sewer relocation design and will be funded through this cooperative agreement.

Financial Impact: Item is consistent with current Fiscal Year 2009/2010. TN 834

Reviewed By: This item was reviewed and unanimously recommended for approval by the Major Projects Committee on June 11, 2009.

Responsible Staff: Garry Cohoe, Director of Freeway Construction

SANBAG Contract No. C09216

by and between

San Bernardino County Transportation Authority

and

City of San Bernardino

for

Cooperative Agreement for I-215 Segments 1, 2, and 5 Sewer Relocation Design Work

FOR ACCOUNTING PURPOSES ONLY

<input type="checkbox"/> Payable <input checked="" type="checkbox"/> Receivable	Vendor Contract # _____ Vendor ID _____	Retention: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Original <input type="checkbox"/> Amendment
--	--	---	--

Notes: Cooperative Agreement specifies reimbursement for consultant sewer relocation work

Original Contract:	\$ <u>300,000.00</u>	Previous Amendments Total:	\$ _____
		Previous Amendments Contingency Total:	\$ _____
Contingency Amount:	\$ _____	Current Amendment:	\$ _____
		Current Amendment Contingency:	\$ _____

Contingency Amount requires specific authorization by Task Manager prior to release.

Contract TOTAL → **\$ 300,000.00**

↓ Please include funding allocation for the original contract or the amendment.

Task	Cost Code	Funding Sources	Grant ID	Amounts
<u>834</u>	<u>5553</u>	<u>City of San Bernardino</u>	_____	\$ <u>300,000</u>
_____	_____	_____	_____	\$ _____
_____	_____	_____	_____	\$ _____
_____	_____	_____	_____	\$ _____

Original Board Approved Contract Date: <u>7/1/09</u>	Contract Start: <u>7/1/09</u>	Contract End: <u>12/31/09</u>
New Amend. Approval (Board) Date: _____	Amend. Start: _____	Amend. End: _____

If this is a multi-year contract/amendment, please allocate budget authority among approved budget authority and future fiscal year(s)-unbudgeted obligations:

Approved Budget Authority →	Fiscal Year: <u>09/10</u> \$ <u>300,000</u>	Future Fiscal Year(s) – Unbudgeted Obligation →	\$ _____
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Is this consistent with the adopted budget? ☒ Yes ☐ No
 If yes, which Task includes budget authority? 834
 If no, has the budget amendment been submitted? ☐ Yes ☐ No

CONTRACT MANAGEMENT

Please mark an "X" next to all that apply:

☒ Intergovernmental
 ☐ Private
 ☐ Non-Local
 ☐ Local
 ☐ Partly Local
 Disadvantaged Business Enterprise: ☒ No ☐ Yes _____%

Task Manager: Garry Cohoe	Contract Manager: Dennis Saylor
----------------------------------	--

<div style="text-align: center;"> Task Manager Signature </div> <div style="text-align: center;"> Chief Financial Officer Signature </div>	<div style="text-align: center;"> Contract Manager Signature </div> <div style="text-align: center;"> Date </div>
--	---

CONTRACT C09-216

COOPERATIVE AGREEMENT

BETWEEN

**SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY/
SAN BERNARDINO ASSOCIATED GOVERNMENTS**

AND CITY OF SAN BERNARDINO

FOR THE

**INTERSTATE 215 SEGMENTS 1, 2, AND 5 SEWER RELOCATION DESIGN
WORK**

This Cooperative Agreement is made and entered into this 1st day of July, 2009 (herein referred to as AGREEMENT), by and between the City of San Bernardino (herein referred to as CITY), and the San Bernardino County Transportation Authority/San Bernardino Associated Governments (herein referred to as SANBAG). This AGREEMENT defines specific SANBAG and CITY tasks and responsibilities for the development of sewer relocation plans associated with the Interstate 215 realignment and reconstruction project through the City of San Bernardino (herein referred to as the PROJECT).

Witnesseth

WHEREAS, the PROJECT consists of realigning and reconstructing the Interstate 215 corridor through the City of San Bernardino; and

WHEREAS, construction of the PROJECT will require relocation of certain City sewer facilities due to the realignment and reconstruction of the PROJECT improvements; and

WHEREAS, SANBAG has a consultant (AECOM) under contract for developing the plans, specifications, and estimates (PS&E) for the PROJECT improvements and AECOM is therefore familiar with the PROJECT impacts on the City sewer facilities; and

WHEREAS, SANBAG has directed AECOM to prepare a PS&E package for the CITY'S sewer relocations; and

WHEREAS, CITY staff has reviewed and approved the PS&E prepared by AECOM; and

WHEREAS, the CITY is willing to reimburse SANBAG for the costs of preparing the PS&E package and other associated costs for the relocation of CITY sewer facilities.

Therefore, both SANBAG and CITY agree to the following:

1. SANBAG shall continue to provide their PS&E design consultant, AECOM, to the CITY for purposes of helping the CITY prepare a PS&E package for the required sewer relocations associated with the PROJECT.
2. SANBAG shall continue to direct AECOM to track their expenses for their design, coordination, and other direct costs, including subconsultants, for services the CITY requires to prepare the PS&E package and to assist in addressing any bid questions during the contractor procurement process.
3. SANBAG shall continue to pay AECOM for any costs incurred on behalf of the CITY and then submit copies of any invoices to the CITY for full reimbursement by the CITY.
4. CITY shall reimburse SANBAG within 30 days of receiving and approving the invoices from SANBAG, up to \$300,000 for costs which SANBAG has paid to AECOM for preparation of the PS&E package.
5. This AGREEMENT shall terminate 6 months after project completion.

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///

**CONTRACT C09216 COOPERATIVE AGREEMENT for INTERSTATE 215
SEGMENTS 1, 2, AND 5 SEWER RELOCATION DESIGN WORK**


IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of
the day and year first set forth above:

**SAN BERNARDINO COUNTY
TRANSPORTATION AUTHORITY:**

By: _____
Paul M. Eaton
President, SANBAG Board of
Directors

Date: _____

**APPROVED AS TO FORM AND
PROCEDURE:**

By:  _____
Jean-Rene Basle
SANBAG Counsel

Date: 6-23-09

CITY OF SAN BERNARDINO

By: _____

Name: Charles E. McNeely

Title: City Manager

Date: _____

APPROVED AS TO FORM:

By: _____
James F. Penman
City Attorney

- San Bernardino County Transportation Commission ■ San Bernardino County Transportation Authority
■ San Bernardino County Congestion Management Agency ■ Service Authority for Freeway Emergencies

Minute Action

AGENDA ITEM: 16

Date: July 1, 2009

Subject: Amendment No. 6 to Contract No. A02-009 with AECOM for preparation of plans, specifications, and estimate for Interstate 215 Segments 1 and 2 in the City of San Bernardino

Recommendation:* Approve Amendment No. 6 to Contract No. A02-009 with AECOM to include the preparation of plans, specifications, and estimates for the relocation of City of San Bernardino sewer facilities for the Interstate 215 project Segments 1 and 2 increasing the amount by \$214,150, for a new total of \$16,767,071, and to extend the Period of Performance to July 31, 2009.

Background: This is an amendment to an existing contract with AECOM. SANBAG has a design contract with AECOM to prepare the plans, specifications, and estimate for the Interstate 215 (I-215) Segments 1 and 2 project. AECOM's contract work includes identifying utilities that need to be relocated. The various utility companies are notified when they have facilities that need to be relocated, and these companies prepare relocation plans which are then reviewed by AECOM to confirm that they no longer interfere with the new I-215 work. For the most part, the cost of utility relocation design and construction is reimbursed as stated in utility agreements between the utility companies and Caltrans, who has acted as utility coordinator for the I-215 corridor.

In the case of the sewer facilities, the utility company is the City of San Bernardino. Due to a variety of factors, there were delays in getting a utility agreement executed between Caltrans and the City of San Bernardino (City). In order to keep the overall project schedule on track, SANBAG staff coordinated with City staff to have AECOM execute the design of the sewer relocations through the contingency remaining in the SANBAG design contract with an option to then submit these costs later for reimbursement from the City once they

Approved
Board of Directors

Date: July 1, 2009

Moved: *Second:*

In Favor: *Opposed:* *Abstained:*

Witnessed: _____

had their utility agreement in place with Caltrans. The utility agreement between Caltrans and the City provides for direct reimbursement by Caltrans to the City for the sewer relocation design and construction costs. Since the City has now executed a utility agreement with Caltrans and the actual work associated with the relocations has been more extensive than originally estimated, this new amendment to the design contract is now being executed. SANBAG will add this work to the design contract and increase the contract cost limit in conjunction with executing a cooperative agreement with the City, see Agenda Item 15. SANBAG will submit these AECOM design costs for the sewer relocation design work to the City for reimbursement. The City will forward those costs to Caltrans for reimbursement through its utility agreement with Caltrans. The cost for the relocation design work for the two segments is estimated to be \$214,150. A time extension for completion of this work is also a part of this contract amendment.

Financial Impact: Item is consistent with current Fiscal Year 2009/2010. TN 834

Reviewed By: This item was reviewed and recommended for approval (13-0-3; Abstained: Gary Ovitt, Paul Biane and Neil Derry) by the Major Projects Committee on June 11, 2009.

Responsible Staff: Garry Cohoe, Director of Freeway Construction

SANBAG Contract No. 02-009-06

by and between

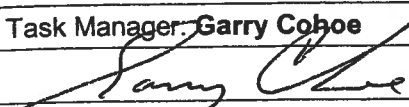
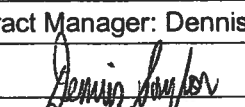


San Bernardino County Transportation Authority

and

AECOM USA, Inc. (formerly DBA DMJM+Harris, Inc.)

for

Prepare PS&E for I-215 Segments 1 and 2

FOR ACCOUNTING PURPOSES ONLY				
<input checked="" type="checkbox"/> Payable <input type="checkbox"/> Receivable	Vendor Contract # _____ Vendor ID _____	Retention: <input type="checkbox"/> Yes _____ % <input checked="" type="checkbox"/> No	<input type="checkbox"/> Original <input checked="" type="checkbox"/> Amendment	
Notes: This amendment is for a time extension only				
Original Contract:	\$6,449,178.05	Previous Amendments Total:	\$ 8,513,522.69	
		Previous Amendments Contingency Total:	\$ <u>729,568.31</u>	
Contingency Amount:	\$ <u>860,652.12</u>	Current Amendment:	\$214,150	
		Current Amendment Contingency:	\$ 0	
Contingency Amount requires specific authorization by Task Manager prior to release.				
Contract TOTAL →				\$ <u>16,767,071.17</u>
↓ Please include funding allocation for the original contract or the amendment.				
Task	Cost Code	Funding Sources	Grant ID	Amounts
834	5553	City of San Bernardino		\$214,150
Original Board Approved Contract Date: <u>7/11/01</u>		Contract Start: <u>7/11/01</u>		Contract End: <u>6/30/09</u>
New Amend. Approval (Board) Date: <u>7/1/09</u>		Amend. Start: <u>7/1/09</u>		Amend. End: <u>7/31/09</u>
If this is a multi-year contract/amendment, please allocate budget authority among approved budget authority and future fiscal year(s)-unbudgeted obligations:				
Approved Budget Authority →	Fiscal Year: <u>09/10</u> \$ <u>214,150</u>	Future Fiscal Year(s) – Unbudgeted Obligation →	\$ _____	
Is this consistent with the adopted budget? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
If yes, which Task includes budget authority? 834E2009				
If no, has the budget amendment been submitted? <input type="checkbox"/> Yes <input type="checkbox"/> No				
CONTRACT MANAGEMENT				
Please mark an "X" next to all that apply:				
<input type="checkbox"/> Intergovernmental	<input checked="" type="checkbox"/> Private	<input type="checkbox"/> Non-Local	<input checked="" type="checkbox"/> Local	<input type="checkbox"/> Partly Local
Disadvantaged Business Enterprise: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes _____ %				
Task Manager: Garry Cohoe			Contract Manager: Dennis Saylor	
 Task Manager Signature			 Contract Manager Signature	
 Chief Financial Officer Signature			 Date	
Date: <u>6/4/09</u>			Date: <u>6/3/09</u>	

AMENDMENT NO. 6

TO CONTRACT NO. 02-009 BETWEEN

SAN BERNARDINO ASSOCIATED GOVERNMENTS/
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY

AND

AECOM USA, Inc. (Formerly DBA DMJM+Harris Inc.)

FOR

Preparation of PS & E for sewer relocation on I-215 project Segments 1 and 2

This AMENDMENT NO. 6 to CONTRACT NO. 02-009 entered into this first day of July, 2009, by the firm of AECOM USA, Inc. (formerly DBA DMJM+Harris, Inc.) (hereafter "CONSULTANT") and San Bernardino Associated Governments/San Bernardino County Transportation Authority (hereafter "SANBAG"):

WITNESSETH:

WHEREAS, SANBAG, under SANBAG Contract No. 02-009 has engaged the services of CONSULTANT to provide consultant services for Project Plans, Specification, and Estimates for the I-215, Segment 1 and Segment 2 Reconstruction/Widening Project for SANBAG; and.

WHEREAS, the parties desire to amend the aforesaid contract to adjust the contract for additional effort expended in design of City of San Bernardino sewer relocations required as part of the Interstate 215 reconstruction project; and

WHEREAS, the execution of this additional work will require additional cost to complete and the duration of these activities will extend beyond the current completion date of the existing contract.

NOW THEREFORE, the parties hereto do mutually agree to amend Contract No. 02-009 and its Amendments 1, 2, 3, 4, and 5 as follows:

1. Under Article 1, Description of Services, that portion of the first sentence which reads "CONSULTANT agrees to perform Services set forth in Attachment "A", Exhibit 1, Exhibit 2, Exhibit 3, and Exhibit 4 in accordance with ..." shall be amended to read "CONSULTANT agrees to perform Services set forth in Attachment "A", Exhibit 1, Exhibit 2, Exhibit 3, Exhibit 4, and Exhibit 5 in accordance with ...".
2. Under Article 2, Performance Schedule and Force Majeure, Subsection 2.1 shall be amended to read as follows:

The Period of Performance by CONSULTANT under this contract shall commence on July 11, 2001 and shall continue in effect until July 31, 2009 or until otherwise terminated or canceled as hereinafter directed or unless extended by direction of SANBAG.

3. Under Article 3, Contract Price and Cost Principles, Subsection 3.2 shall be amended to read as follows:

3.2 The total cost shall not exceed \$15,176,850.74 with a contingency of \$1,591,220.43 for a total contract cost of \$16,767,071.17. Services under terms of this contract are to be provided on an as needed basis and compensated for as set forth in Attachment "B" and Exhibits 1, 2, 3, 4, and 5 which are incorporated herein by reference. Utilization of the contingency is not permitted unless directed in writing by SANBAG Project Manager. CONSULTANT's fee for services is included in the total estimated contract cost and shall be a fixed percentage rate of labor and overhead for work performed, as agreed upon, and noted in Attachment "B".

4. This amendment authorizes additional costs of \$214,150.00 over the existing contract amount of \$16,552,921.17 to \$16,767,071.17. This amendment reflects an additional funding request from CONSULTANT for additional design services which is set forth separately and in detail in Exhibit 5, which is attached hereto and incorporated by reference.
5. All other provisions of Contract No. 02-009 and amendments 1 through 5 remain in full force and effect.

IN WITNESS THEREOF, the authorized parties have below signed:

AECOM USA, Inc.

**SAN BERNARDINO ASSOCIATED
GOVERNMENTS/SAN BERNARDINO
COUNTY TRANSPORTATION
AUTHORITY**


By: _____

By: _____
Paul M. Eaton, President
SANBAG Board of Directors

Date: _____

Date: _____

APPROVED AS TO FORM:

By:  _____
Jean-Rene Basle
SANBAG Counsel

Contract A02-009-06 Exhibit 5

City of San Bernardino Sewer Relocation Design

For the I-215 Segment 1+2 Project

Scope of Work

SANBAG, in cooperation with City of San Bernardino, Caltrans and FHWA is sponsoring projects to reconstruct Interstate 215 (I-215) in the City of San Bernardino. The I-215 Segment 1+2 project is from Redlands Loop Overhead to north of 16th Street.

Construction of Segment 1+2 will require reconstruction of both vertical and horizontal alignments of I-215. Significant amounts of right of way along the east side of I-215 (residential and commercial) were acquired to accommodate the freeway construction. As a result, hundreds of utilities must be removed or relocated due to conflicts with the freeway improvements. The sewer system owned by the City of San Bernardino conflicts with the proposed freeway reconstruction in many locations. These conflicts must be eliminated to allow freeway work to proceed.

Since AECOM is responsible for preparing the Plans, Specifications and Estimates for I-215 Segment 1+2 and is very familiar with the utility conflicts, SANBAG and the City of San Bernardino agreed to have AECOM prepare the sewer relocation plans. It is important to complete the sewer relocation work as quickly as possible to ensure that the work is completed prior the freeway construction. The goal of the sewer relocation design is to replace the existing system, not to upgrade or add sewer capacity. In addition to Caltrans and City standards, the plans need to comply with American Railway Engineering and Maintenance of way Association (AREMA) standards. The major scope of work elements are listed below:

- Project management and coordination for the project. The work requires coordination with the City, SANBAG, Caltrans and other utility companies.
- Reviewing and evaluating the existing City of San Bernardino sewer system. This requires as-built plan research, review of sewer master plans, video documentation (CCTV) of existing sewer pipes and additional field survey work.
- Preparing sewer relocation alternatives and evaluating relocation impacts on other utilities and the BNSF Railroad.
- Performing engineering and design for the new sewer lines and preparing the relocation plans.
- Developing construction quantities and estimates.
- Preparing construction specifications for abandoning sewer lines and constructing new sewer lines.
- Providing support to the City during the construction bidding process.

COST AND PRICE ANALYSIS
SAN BERNARDINO ASSOCIATED GOVERNMENTS

NAME OF CONSULTANT		TITLE OF PROJECT		
AECOM		I-215 Segment 1 & 2 Sewer Relocation Design		
Detail Description	Estimated Hours	(Average) Rate/Hour	Total Estimated Cost (\$)	
1. DIRECT LABOR (Specify) SEE CONTINUATION SHEET				
PROJECT MGR/TECHNICAL DIRECTOR	31	\$60.00	1,860.00	
PRINCIPAL/PROJECT ENGINEER	782	\$60.00	46,920.00	
ENGINEER IV	169	\$45.00	7,605.00	
ENGINEER III	0	\$36.00	0.00	
ENGINEER II	171	\$34.50	5,899.50	
ENGINEER I	100	\$26.00	2,600.00	
CADD MANAGER	17	\$52.00	884.00	
DESIGNER	163	\$21.00	3,423.00	
ADMINISTRATIVE ASSISTANT	5	\$28.00	140.00	
TOTAL		1,438		\$69,331.50
2. INDIRECT COSTS (Overhead,G&A-specify)		Burden Rate	X Base =	Burden (\$)
	137.82%	\$69,331.50	\$95,552.67	\$95,552.67
3. TOTAL DIRECT LABOR AND INDIRECT COSTS (Sum of lines 1 and 2)				
				\$164,884.17
4. FIXED FEE OR PROFIT (Specify, applies to line 3 only)		Percent	X Base =	Fee (\$)
	10.00%	\$164,884.17	\$16,488.42	\$16,488.42
G/A on ODC 8.1%	8.10%	\$30,321.27	\$2,456.02	\$2,456.02
			\$0.00	\$0.00
TOTAL				\$18,944.44
5. OTHER DIRECT COSTS				
Reproduction/Plotting				\$1,500.00
Copying/Binding				
Transportation/Travel				250
Special Deliveries				70
SAFE-R-DIG (CCTV documentation of system)				8,149.48
ASSOCIATED (field survey of existing sewer)				20,351.79
EMI				0
KLEINFELDER				0
LIN				0
LSA				0
STB LANDSCAPE				0
6. TOTAL CONTRACT COST (Sum of lines 3, 4 and 5)				214,149.88
Say				\$214,150
DATE				
May 13, 2009				

May 13, 2009

Task	Level of Effort (Hours)									COMMENTS
	Project Mgr	Project Engr	ENGR IV	ENGR II	ENGR I	CADD Mgr	Designer	Admin	TOTAL	
	26	85						5	116	
Project Management & Coordination		160	20						180	
Existing sewer system evaluation & CCTV coordination and review		80	40	25			43		188	
Relocation Alternatives Studies		322	104	106	100	17	120		769	
Sewer Design and Plan preparation		40		20					60	
Sewer Construction quantities and estimate		85		20					105	
Specifications	5	10	5						20	
Bidding Support										
Total Hours	31	782	169	171	100	17	163	5	1438	

- San Bernardino County Transportation Commission ■ San Bernardino County Transportation Authority
■ San Bernardino County Congestion Management Agency ■ Service Authority for Freeway Emergencies

Minute Action

AGENDA ITEM: 17

Date: July 1, 2009

Subject: Amendment No. 5 to Contract 04-008 with AECOM USA, Inc. (formerly DMJM+HARRIS, Inc.) for Construction Management Support services for I-215 Segment 5 in the City of San Bernardino

Recommendation:* Approve Amendment No. 5 to Contract 04-008 with AECOM USA, Inc. (formerly DMJM+HARRIS, Inc.) increasing the contract amount by \$220,000 for a new total of \$5,281,673.30 and extend the period of performance to December 31, 2015.

Background: This is an amendment to an existing contract. In 2003 through a competitive qualifications based selection process, AECOM USA, Inc. (formerly DMJM+HARRIS, Inc.) was selected to provide final design services for the Interstate 215 Segment 5 project, the northernmost segment of I-215 widening between I-10 and SR-210. This segment overlaps the SR-210 Segment 11 Contract 3 that includes the high speed freeway to freeway connectors. At its May 2007 meeting, the Board authorized combining this segment with SR-210 Segment 11 Contract 3 into a single PS&E package. In November 2008, the Board assigned Caltrans to serve as the lead agency for the construction phase of the combined project. The respective Amendments to Design Cooperative Agreement Nos. A04-028 and C07-191 for funding of the Caltrans functions in reviewing the packages and preparing a final bid

*

*Approved
Board of Directors*

Date: July 1, 2009

Moved: Second:

In Favor: Opposed: Abstained:

Witnessed: _____

package were approved by the Board at its December 2008 meeting. The project's final design has been completed and Advertisement for Bids commenced on May 18, 2009. Both of the Cooperative Agreements state that SANBAG shall make the designer, AECOM USA, Inc. (formerly DMJM+HARRIS, Inc.) available to respond to design questions through the completion of Project construction and to complete the as-built plans..

This amendment will fund work that is anticipated during the bidding, construction and close-out phases for I-215 Segment 5. A full breakdown of anticipated scope items and fee is detailed in Attachment A. The total fee is \$220,000 which includes a 10% contingency. The period of performance is being extended from December 31, 2009 to December 31, 2015.

Financial Impact: Item is consistent with the current 08/09 Fiscal Year Budget. TN 834.

Reviewed By: This item was reviewed and recommended for approval (12-0-4; Abstained: Gary Ovitt, Paul Biane, Neil Derry and Josie Gonzales) by the Major Projects Committee on June 11, 2009.

Responsible Staff: Garry Cohoe, Director of Freeway Construction

by and between

San Bernardino County Transportation Authority

and

AECOM USA, Inc.

for

PS&E, I-215, Segment 5

FOR ACCOUNTING PURPOSES ONLY

<input checked="" type="checkbox"/> Payable	Vendor Contract #	Retention:	<input type="checkbox"/> Original
<input type="checkbox"/> Receivable	Vendor ID <u>AECOM</u>	<input type="checkbox"/> Yes ____ % <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Amendment
Notes:			
Original Contract:	\$ <u>825,589</u>	Previous Amendments Total:	\$ <u>3,362,087.00</u>
Contingency Amount:	\$ <u>131,486</u>	Previous Amendments Contingency Total:	\$ <u>359,198.00</u>
		Current Amendment:	\$ <u>200,000.00</u>
		Current Amendment Contingency:	\$ <u>20,000.00</u>
Contingency Amount requires specific authorization by Task Manager prior to release.			
Contract TOTAL →			\$ <u>5,281,673.30</u>

↓ Please include funding allocation for the original contract or the amendment.

<u>Task</u>	<u>Cost Code</u>	<u>Funding Sources</u>	<u>Grant ID</u>	<u>Amounts</u>
<u>834</u>	<u>5554</u>	<u>Measure I</u>	<u>I300</u>	<u>\$220,000</u>
_____	_____	_____	_____	\$ _____
_____	_____	_____	_____	\$ _____
_____	_____	_____	_____	\$ _____

Original Board Approved Contract Date: 7/2/03 Contract Start: 7/2/03 Contract End: 7/2/04
 New Amend. Approval (Board) Date: 07/1/09 Amend. Start: 07/1/09 Amend. End: 12/31/15

If this is a multi-year contract/amendment, please allocate budget authority among approved budget authority and future fiscal year(s)-unbudgeted obligations:

Approved Budget Authority →	Fiscal Year: <u>09/10</u> \$ <u>70,000</u>	Future Fiscal Year(s) – Unbudgeted Obligation →	\$ <u>150,000</u>
------------------------------------	---	--	-------------------

Is this consistent with the adopted budget? ☒ Yes ☐ No
 If yes, which Task includes budget authority? 83409000
 If no, has the budget amendment been submitted? ☐ Yes ☐ No

CONTRACT MANAGEMENT

Please mark an "X" next to all that apply:

☐ Intergovernmental ☒ Private ☐ Non-Local ☒ Local ☐ Partly Local

Disadvantaged Business Enterprise: ☒ No ☐ Yes ____ %

Task Manager: Garry CohoeContract Manager: Stephen Yench

Task Manager Signature

Date

Contract Manager Signature

Date

Chief Financial Officer Signature

Date

AMENDMENT NO. 5
AGREEMENT BETWEEN
**SAN BERNARDINO ASSOCIATED GOVERNMENTS/
SAN BERNARDINO COUNTY TRANSPORTATION AUTHORITY**
AND
AECOM USA, INC. (FORMERLY DBA DMJM+HARRIS INC.)
FOR
PREPARE PS & E FOR I-215 SEGMENT 5

This AMENDMENT No. 5 to SANBAG Contract No. 04-008 entered into this 11th day of June 2009, by the firm of AECOM USA, Inc. (Formerly DBA DMJM+Harris Inc.), hereafter referred to as CONSULTANT, and the San Bernardino Associated Governments/San Bernardino County Transportation Authority, hereafter referred to as AUTHORITY, collectively hereafter referred to as PARTIES:

WITNESSETH

WHEREAS, SANBAG under Contract 04-008 has engaged the services of CONSULTANT to provide services to prepare and complete Plans, Specifications, and Estimate for Interstate 215, Segment 5, hereafter referred to as the PROJECT; and,

WHEREAS, the duration of these activities will extend beyond the current completion date of the existing contract.

NOW THEREFORE, the parties hereto do mutually agree to amend Contract No. 04-008 as follows:

1. The contract scope of services is hereby amended to include the work described in Attachment "A" of this Amendment which is hereby incorporated into the Agreement.
2. The not-to-exceed cost of Contract No. 04-008 shall be increased by \$220,000.00 for a not-to-exceed total contract amount of \$5,281,673.30. The costs shall include all work performed by subconsultants, and all overhead costs, other direct costs, and fee for CONSULTANT and subconsultants, as detailed in Attachment "A".

3. Extend the contract duration in Article 2, Performance Schedule and Force Majuere, of the contract, as amended to the completion of the PROJECT, estimated to be December 31, 2015
4. Except as amended by this amendment, all other provisions of Contract No. 04-008 shall remain in full force and effect.

IN WITNESS THEREOF, the authorized parties have below signed:

AECOM USA, INC.

By: _____

Date: _____

**SAN BERNARDINO
ASSOCIATED GOVERNMENTS/
SAN BERNARDINO COUNTY
TRANSPORTATION AUTHORITY**

By: _____
Paul M. Eaton, President
SANBAG Board of Directors

Date: _____

APPROVED AS TO FORM:

By: Jean Rene Basle
Jean-Rene Basle
SANBAG Counsel

Date: 6-18-09

Attachment A

COST AND PRICE ANALYSIS

SAN BERNARDINO ASSOCIATED GOVERNMENTS

NAME OF CONSULTANT		TITLE OF PROJECT		
AECOM		I-215 Segment 5 - Construction Support		
Detail Description	Estimated Hours	(Average) Rate/Hour	Total Estimated Cost (\$)	
1. DIRECT LABOR (Specify) SEE CONTINUATION SHEET				
PROJECT MGR/TECHNICAL DIRECTOR	65	\$82.16	5,340.40	
PRINCIPAL/PROJECT ENGINEER	150	\$66.00	9,900.00	
ENGINEER IV	50	\$54.00	2,700.00	
ENGINEER III	440	\$46.00	20,240.00	
ENGINEER II	280	\$37.00	10,360.00	
ENGINEER I	0	\$31.00	0.00	
CADD MANAGER	10	\$52.00	520.00	
CADD DESIGNER	0	\$21.00	0.00	
ADMINISTRATIVE ASSISTANT	76	\$23.00	1,748.00	
TOTAL		1,071		\$50,808.40
2. INDIRECT COSTS (Overhead, G&A-specify)	Burden Rate	X Base =	Burden (\$)	
	150.00%	\$50,808.40	\$76,212.60	\$76,212.60
3. TOTAL DIRECT LABOR AND INDIRECT COSTS (Sum of lines 1 and 2)				\$127,021.00
4. FIXED FEE OR PROFIT (Specify, applies to line 3 only)	Percent	X Base =	Fee (\$)	
	10.00%	\$127,021.00	\$12,702.10	\$12,702.10
TOTAL				\$127,021.00
5. OTHER DIRECT COSTS				
Reproduction/Plotting				\$1,500.00
Copying/Binding				525
Transportation/Travel				250
Special Deliveries				40,000
TRC				5,000
ASSOCIATED				5,000
EMI				5,000
LIN				3,000
STB LANDSCAPE				
6. TOTAL CONTRACT COST (Sum of lines 3, 4 and 5)				199,998.10
Say				\$200,000
DATE				
June 2, 2009				

I-215 - Segments 5 Construction Support
SANBAG Contract No. 04-008

AECOM

June 2, 2009

Task	Level of Effort (Hours)									TOTAL
	Project Mgr/Tech Director	Principal/Project Engr	ENGR IV	ENGR III	ENGR II	ENGR I	CADD Mgr	CADD Design	Admin	
	60	30							26	116
Project Management and Administration		10		20					10	40
Bid Support, Bidder Questions, Addendum s		40		160	120				40	360
RFIs, RE Coordination, & site visits		20	40	100						160
Shop Drawing Review		10		80						90
CCOs		10	10	80	160		10			270
As-built Drawings										
Claims Resolution	5	30								35
Total Hours	65	150	50	440	280	0	10	0	76	1071

- San Bernardino County Transportation Commission ■ San Bernardino County Transportation Authority
■ San Bernardino County Congestion Management Agency ■ Service Authority for Freeway Emergencies

Minute Action

AGENDA ITEM: 18

Date: July 1, 2009

Subject: Request for Qualifications (RFQ) No. 09-203 for Interstate-10 Westbound Widening Construction Management

Recommendation:* Authorize staff to release Request for Qualifications (RFQ) No. 09-203 for Interstate-10 Westbound Widening Construction Management.

Background: This action will lead to the award of a new consultant contract for construction related services. Caltrans agreed to have SANBAG assume the lead agency role to complete the final design and advertise, award, and administer the construction contract for the Interstate-10 Westbound Widening Project. The SANBAG Board agreed in concept to this and approved the Design Cooperative Agreement No. C08-044 at its October 2007 meeting. Since then significant progress has transpired. It is expected that environmental certification will be achieved in August 2009 and right of way certification completed by September 2009. The design is in final review and construction is expected to start in early 2010, assuming that the CMIA funds are allocated.

While the availability of CMIA funding for this project is unknown, it is recommended that this RFQ move forward in order to avoid any loss in time should the funds be allocated after our initial request or shortly thereafter. As SANBAG proceeds to the construction phase of this project it is first necessary to secure the services of a full service construction management team to include

*Approved
Board of Directors*

Date: July 1, 2009

Moved: *Second:*

In Favor: *Opposed:* *Abstained:*

Witnessed: _____

constructability, construction management, materials testing, and construction staking and surveying. Attached is the Scope of Work.

Financial Impact: No new financial impact to SANBAG is associated with this action.

Reviewed By: This item was reviewed and unanimously recommended for approval by the Major Projects Committee on June 11, 2009.

Responsible Staff: Garry Cohoe, Director of Freeway Construction

ATTACHMENT "A"

Scope of Services

By and between

**San Bernardino Associated Governments/
San Bernardino County Transportation Authority**

And

To

**Provide Construction Management, Material Testing and Construction
Surveying Services**

For

I-10 Westbound Widening Project

Cities of Redlands and Yucaipa

INDEX

- A. DESCRIPTION OF SERVICES
- B. PERFORMANCE REQUIREMENTS
- C. DUTIES AND RESPONSIBILITIES
 - 1. Pre-construction Services
 - 2. Bid Process
 - 3. Project Administration
 - 4. Construction Coordination
 - 5. Construction Inspection
 - 6. Project Support
 - 7. Cost and Schedule
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- D. DELIVERABLES
- E. EQUIPMENT AND MATERIALS TO BE PROVIDED BY CONSULTANT
- F. MATERIALS TO BE FURNISHED BY SANBAG
- G. STANDARDS
- H. AVAILABILITY AND WORK HOURS
- I. LIMITATIONS TO AUTHORITY
- J. THIRD PARTY RELATIONSHIPS
- K. CONSTRUCTION SITE SAFETY
- L. BASIS FOR SURVEY AND MONUMENT MARKING
- M. PERSONNEL QUALIFICATIONS

A. DESCRIPTION OF SERVICES

The San Bernardino Associated Governments (SANBAG) will utilize the services of CONSULTANT to support the construction activities for the Interstate 10 Westbound Widening Project, which is anticipated to go out to bid in late 2009. CONSULTANT will provide construction management, materials testing and construction surveying for the project. A description of the project is given below.

INTERSTATE 10 WESTBOUND WIDENING PROJECT

The I-10 Westbound Widening Project proposes to add a general purpose lane to westbound I-10 from Live Oak Canyon Road in the City of Yucaipa to Ford Street in the City of Redlands. The major project features include pavement widening, retaining wall construction, local street improvements, grading, drainage modifications, signing and striping and traffic handling. SANBAG estimates that construction activities for this project will last approximately 20 months.

CONSULTANT shall provide qualified construction management and inspection, materials testing and construction surveying personnel to perform a wide variety of construction management, support and contract administration duties as outlined in this Scope of Services for the Project.

The SANBAG Contract Manager for this contract will be:

Mr. Garry Cohoe
Director of Freeway Construction

SANBAG has selected Parsons as Program Manager for the Measure I Valley Major Projects. As part of the overall SANBAG/Parsons staff, SANBAG has also designated a Construction Manager to coordinate all construction activities. The CONSULTANT shall report to and receive direction from SANBAG through the Contract Manager, or his designees. The SANBAG Construction Manager is responsible for coordination of all SANBAG construction activities and for coordinating the efforts of the total construction team. The SANBAG Construction Manager will be the main contact and primary source of information between SANBAG, cities, outside agencies, supporting consultants and the public for the construction projects.

B. PERFORMANCE REQUIREMENTS

Construction Management: CONSULTANT shall furnish a Project Manager to coordinate CONSULTANT operations with SANBAG. The Project Manager shall be responsible for all matters related to CONSULTANT personnel and operations. The Project Manager may also serve as the Resident Engineer. The Resident Engineer shall be assigned to direct and coordinate construction activities under this contract. Other Assistant Resident Engineers may be assigned to each specific project responsibilities as needed. The Resident Engineer shall be a Civil Engineer registered in the State of California and shall be in responsible charge of construction management and construction activity within the Project.

The number of CONSULTANT personnel assigned to the project will vary throughout the duration of the contract. CONSULTANT personnel will be assigned, in varying levels of responsibility, as needed by the CONSULTANT to meet the project schedule, project requirements, and construction activities.

Resumes of personnel must be submitted to SANBAG for review and approval prior to assignment to the Project. SANBAG and CONSULTANT will jointly determine the quality and quantity of services that are required by CONSULTANT personnel. Personnel selected for assignment by CONSULTANT shall be made available for personal interviews prior to acceptance by SANBAG. If, in the opinion of SANBAG, an individual lacks adequate experience, the individual may be rejected or may be accepted on a trial basis until such time the individual's ability to perform the required services has been demonstrated. If, at any time, the performance of CONSULTANT personnel is unsatisfactory to SANBAG, SANBAG may release him/her by written notice and may request another qualified person be assigned.

If CONSULTANT personnel are on leave of absence, the Project Manager shall provide approved, equally qualified replacement personnel until the assigned personnel returns to the Project.

The typical workday includes all hours worked by the construction Contractor. If necessary, overtime for CONSULTANT personnel may be required. The construction Contractor's operations may be restricted to specific hours during the week, which shall become the normal workday for CONSULTANT personnel. The Project Manager, with concurrence from SANBAG, shall have the authority to increase, decrease, or eliminate CONSULTANT personnel work hours dependent on the schedule and requirements of the construction Contractor. All overtime required by CONSULTANT personnel shall be approved and authorized by SANBAG prior to each occurrence.

CONSULTANT personnel shall be knowledgeable of and comply with all applicable local, state, and federal regulations. CONSULTANT personnel shall cooperate and consult with SANBAG, State, and City officials during the course of the Project. CONSULTANT personnel shall perform duties as may be required to assure that construction is being performed in accordance with the Project plans and specifications. CONSULTANT personnel shall keep accurate and timely records and document all work performed by the Contractor and CONSULTANT.

CONSULTANT shall monitor for Contractor's compliance with the labor standards provisions of the projects and the related wage determination decisions of the Secretary of Labor.

CONSULTANT personnel shall assist SANBAG and local agencies in obtaining compliance with the safety and accident prevention provisions of the projects. Local agencies will retain jurisdictional control for traffic control.

All services required herein shall be performed in accordance with California Department of Transportation guidelines, regulations, policies, procedures, manuals, and standards, except as noted in the special provisions.

Materials Testing: The number of field testing personnel assigned to the project will vary throughout the duration of the construction contract. CONSULTANT certified materials testing personnel will be assigned as needed by the Resident Engineer to meet the required numbers and frequencies of testing based on schedule of the construction contractor.

Materials Testing Services will be provided on an on-call basis. The duration of assignments could vary from a minimum of a few hours to the full term of the project. CONSULTANT personnel will be available within one (1) day of written notification by SANBAG.

It is the intent of SANBAG to maintain a consistency of material testing quality throughout each phase of each project. CONSULTANT is therefore encouraged to provide, where ever and whenever possible, the same field personnel for the duration of construction of each project.

On days when work is not performed by the construction contractor, such as rainy or unsuitable weather days, CONSULTANT will not provide services unless authorized by the SANBAG Construction Manager.

Resumes of materials testing personnel must be submitted to SANBAG for review and approval prior to assignment to the Project. If, at any time, the level of performance of any testing personnel is below expectations, SANBAG may release that field person and request that another be assigned as needed.

If a member of CONSULTANT's materials testing personnel is on a leave of absence, CONSULTANT's project manager will provide an equally qualified replacement employee until the original member returns to work. The replacement employee will meet all the requirements of a permanently assigned employee.

All CONSULTANT personnel will be knowledgeable of, and comply with, all applicable local, state, and federal regulations. All personnel shall cooperate and consult with SANBAG during the course of the contract; and perform other duties as may be required to assure that the construction is being performed in accordance with the project plans and specifications. CONSULTANT's personnel will keep records and document the work as directed by the Resident Engineer.

All services required herein will be performed in accordance with Caltrans regulations, policies, procedures, manuals, and standards.

Construction Surveying: CONSULTANT will furnish surveying crew(s) to perform construction surveys for the project. The number of survey crew(s) assigned to the project will vary throughout the duration of the construction contract. CONSULTANT personnel will be assigned as needed by the Resident Engineer to meet the schedule of the construction contractor.

Construction surveying services will be provided on an on-call basis. It is the intent of SANBAG to maintain a consistency of construction survey quality throughout each phase of each project. Therefore, CONSULTANT is encouraged to provide the same field personnel for the duration of construction. It is important that the Field Party Chief(s) assigned to a project be completely familiar with the survey requirements and the assignments for the project.

On days when work is not performed by the construction contractor, such as rainy or unsuitable weather days, CONSULTANT will not provide services unless authorized by the Resident Engineer.

Construction surveying will not be performed when conditions such as weather, traffic, and other factors prevent safe and efficient operation.

Resumes of CONSULTANT personnel and certification must be submitted to SANBAG for review. CONSULTANT personnel must be approved by SANBAG prior to assignment to a project. SANBAG and CONSULTANT will have the responsibility of determining the quality and quantity of work performed by CONSULTANT personnel. If, at any time, the level of

performance of any CONSULTANT survey personnel is below expectations, SANBAG may release the survey crew member and request that another be assigned.

If CONSULTANT's survey crew personnel assigned to the project is on a leave of absence, the Project Manager will provide an equally qualified replacement(s) until the original employee(s) returns to work. The replacement(s) will be required to meet all the requirements of the permanently assigned employee(s).

CONSULTANT personnel will:

- Be knowledgeable of, and comply with all, applicable local, Caltrans, state, and federal regulations.
- Cooperate and consult with SANBAG officials during the course of the contract.
- Perform duties as may be required to assure construction is performed in accordance with the project plans and specifications.
- Keep records and document work as directed by the Resident Engineer.

All services required herein will be performed in accordance with Caltrans regulations, policies, procedures, manuals, and standards.

C. DUTIES AND RESPONSIBILITIES

1. Pre-construction Services

a. Schedule

CONSULTANT shall review the proposed Project schedule, compare it to the Project plans and specifications, and provide recommendations to SANBAG, as appropriate, to ensure efficiency of Contractor and CONSULTANT operations and safe and expeditious completion of the Project.

b. Budget

CONSULTANT shall review the Project estimate and provide recommendations to SANBAG, as appropriate, to ensure efficient utilization of funds and control of project costs.

2. Bid Process

a. Bid Documents

CONSULTANT shall assist SANBAG, as requested, with the following tasks:

1. Review of bid documents
2. Preparation of bid tabulations

b. Pre-construction Meetings

CONSULTANT shall assist SANBAG in conducting one, or more, pre-construction meetings with all involved parties on the Project. Parties may

include, but are not limited to, the Contractor, the design engineer, County, cities, utility companies, and developers.

c. Contract Award

CONSULTANT shall assist SANBAG, as requested, with the following tasks:

1. Review of bid for completeness and responsiveness
2. Perform bid analysis
3. Development of contractor payment schedules, and other procedural items.
4. Checking Contractor references, licenses, insurance, and sureties.
5. Coordination with prospective Contractor for award of construction contract(s).

All processes will be consistent with procedures outlined by the California Department of Transportation for Special Funded Programs and Local Assistance Procedure Manuals.

3. Project Administration

- a. CONSULTANT shall administer project construction contracts using Caltrans Construction Manual as a guideline.
- b. CONSULTANT shall conduct regular project coordination meetings with Contractor, SANBAG, local agencies, and design engineer, as appropriate.
- c. CONSULTANT shall prepare Contractor progress payments and maintain payment records and supporting documentation. All progress payments shall be reviewed by SANBAG for approval.
- d. CONSULTANT shall provide reports as needed to comply with specific funding requirements.
- e. CONSULTANT shall establish and maintain Project records in accordance with the Caltrans Construction Manual. Project record keeping shall include, but are not limited to, correspondence, memoranda, contract documents, change orders, claims, SANBAG and engineer directives, meeting minutes, shop drawings, supplementary drawings, and requests for payment. CONSULTANT shall maintain a record of the names, addresses, and telephone and fax numbers of the Contractors, subcontractors, and principal material suppliers.
- f. CONSULTANT shall establish and maintain a filing system for each Project using the Caltrans Construction Manual as a guideline.

- g. CONSULTANT shall monitor Contractors' construction schedules on an ongoing basis and alert SANBAG to conditions that may lead to delays in completion of the Project.
- h. CONSULTANT shall prepare and submit a monthly Activity Summary Report for the Project. The activity report shall include status of SWPPP issues, RFIs, contract change orders, and notice of potential claims; construction activities completed, ongoing, and upcoming; status of project budget and schedule, and other highlights and critical issues
- i. CONSULTANT shall review and ensure compliance with environmental requirements.
- j. CONSULTANT shall participate in partnering sessions with the Contractor, SANBAG, and Local Agencies, as required.
- k. CONSULTANT shall ensure that the Project meets all provisions of the Caltrans Quality Assurance Program Manual.
- l. CONSULTANT shall review Contractors' certified payroll records and ensure compliance with the requirements of the construction contract..
- m. CONSULTANT shall ensure that the Project meets all provisions of the Storm Water Pollution Prevention Plan (SWPPP).
- n. CONSULTANT shall assure that the Project meets all applicable regulations of the Air Quality Management District (AQMD).
- o. CONSULTANT shall maintain redlined as-built plans on an ongoing basis throughout the duration of the project. Redlined plans shall show all changes made to the original contract plans, each change identified with the name of the approver, date of change approval , and CCO number, if applicable

4. Construction Coordination

- a. CONSULTANT shall provide a minimum of one qualified Resident Engineer to effectively manage the Project.
- b. CONSULTANT Resident Engineer shall act as a prime point of contact between Contractor, SANBAG, CONSULTANT's construction surveyor, CONSULTANT's materials inspector, and utility companies. CONSULTANT may, when requested by SANBAG, act as point of contact between design engineers, cities, and the public. CONSULTANT shall ensure coordination with property owners adjacent to project right-of-way to ensure timely communication regarding property-condition survey and construction activities and scheduling.
- c. CONSULTANT shall maintain regular contact with SANBAG's Construction Manager.
- d. CONSULTANT shall coordinate utility relocations with utility companies and their designees, as well as the utility inspector.

- e. CONSULTANT shall proactively review Project plans and special provisions for possible errors and deficiencies prior to construction of any specific element and report such findings to SANBAG. Should SANBAG determine that changes are necessary, CONSULTANT shall assist in implementation and processing of change orders in accordance with contract documents.
- f. CONSULTANT shall proactively review Project plans and special provisions; monitor, coordinate, and track construction progress schedule and RFIs; and communicate with various agencies prior to construction of any specific elements to ensure the Project proceeds on schedule and according to the order of work in the plans and special provisions. CONSULTANT shall expedite work, as required, to maintain schedule in conjunction with the overall construction staging program.
- g. CONSULTANT shall coordinate review of shop drawings and Requests for Information (RFI) with the Construction Manager. CONSULTANT shall log and track all submittals and requests.
- h. CONSULTANT shall provide a qualified SWPPP coordinator who shall review contractor prepared Storm Water Pollution Prevention Plans (SWPPP) and coordinate approval with SANBAG. CONSULTANT shall cooperate with monitoring agency inspections and field reviews.
- i. CONSULTANT shall coordinate the implementation of any changes with the Construction Manager and the design engineer.
- j. CONSULTANT shall review and approve falsework and shoring plans.
- k. CONSULTANT shall review and approve Traffic Control Plans and forward to SANBAG to get City/County approval, as necessary.
- l. CONSULTANT shall coordinate all Project construction activities with other ongoing projects within and adjacent to the Project limits.

5. Construction Inspection

- a. CONSULTANT shall coordinate all required inspections necessary for the Project. CONSULTANT shall ensure that appropriate City and local agencies are notified and present as required throughout the Project. CONSULTANT shall notify SANBAG immediately regarding any directives, recommendations, notices, etc. received from agencies other than SANBAG.
- b. CONSULTANT shall perform daily on-site observations of the progress and quality of construction to determine if the work being performed is in general conformance with the contract documents, all applicable laws, codes, and ordinances.
- c. CONSULTANT shall exercise reasonable care and diligence to discover and promptly report to SANBAG any and all defects or deficiencies in the materials or workmanship used in the Project.

- d. CONSULTANT personnel assigned to the Project shall be thoroughly familiar with Caltrans Standard Specifications, Caltrans Standard Plans, Caltrans Erosion Control and Highway Planting requirements, and safety standards. CONSULTANT personnel shall have the ability to read and interpret construction plans and specifications. CONSULTANT personnel shall also have knowledge of State of California Construction Safety Orders (CalOSHA) and traffic control practices as specified in the Work Area Traffic Control Handbook (WATCH). In addition, CONSULTANT personnel shall be familiar with the construction requirements of Caltrans' Storm Water Pollution Prevention Program.
- e. Assignments to be performed by CONSULTANT personnel shall include, but are not limited to, the following:
 - 1. Paving and subgrade inspection, sub-surface & finish surface drainage inspection, structures and foundation inspection, signing and striping inspection, quantity calculations, checking grade and alignment, construction traffic control, soil amendments and plant material identification & quality control, hardscape inspection, trenching & irrigation inspection and duties that may be required to determine that construction of the Project is being performed in accordance with the contract documents.
 - 2. Identifying actual and potential problems associated with the Project and recommending sound engineering solutions.
 - 3. Identifying common plant diseases and/or pests together with their respective eradication techniques, directing of plant adaptability requirements along with proper planting & pruning techniques, and avoiding potential problems associated with the Project by recommending sound engineering solutions.
 - 4. Perform basic sampling of construction materials in the field per California Test Method 105 and 125 by both the prime and subconsultant personnel.
 - 5. Maintaining awareness of safety and health requirements. Monitoring Contractors' compliance with applicable regulations and construction contract provisions for the protection of the public and Project personnel.
 - 6. Preparing complete and accurate daily reports, calculations, project records, payment quantity documents, reports, and correspondence related to Project activities.
 - 7. Preparing construction sketches, drawings, and cross-sections, as necessary.
 - 8. Assisting in the preparation of as-built plans.
 - 9. Providing inspections for environmental compliance.

10. Maintaining awareness of water discharge requirements. Monitoring Contractors' compliance with applicable regulations and construction contract provisions.
11. Monitoring Contractors' compliance with applicable regulations required by AQMD.
12. Other duties as may be required or reasonably requested.

6. Project Support

a. Construction Surveys

CONSULTANT shall perform construction surveying services, field calculations, and home office calculations to support construction of the Project. CONSULTANT may be requested to review available survey data, construction plans, and right-of-way plans to confirm compatibility and to identify discrepancies prior to and during construction of proposed projects. The Resident Engineer will assign survey work to the CONSULTANT by issuing a "Request for Survey Services". Requests may include, but not be limited to, the following types of surveys and related services:

I. Construction Surveys

CONSULTANT shall assist the Resident Engineer in all phases of construction staking and calculations as needed.

- a. Survey calculations and adjustments shall be performed with established and computed coordinates based on the California Coordinate System.
- b. Cross-section data collection shall be performed by conventional and terrain line interpolation survey methods.
- c. Survey data will include topography, cross-section, and other survey data in computer formats compatible with the Caltrans computer survey and design systems.
- d. Prepare and maintain survey documents. Survey documents include survey field notes, maps, drawings, and other survey documents.
- e. Perform construction staking, including but not limited to:
 - Utility relocations
 - Clearing limits
 - Slope staking
 - Storm drain, sanitary sewer, and irrigation systems
 - Drainage structures
 - Curbs, gutters, and sidewalk
 - Horizontal and vertical control for structures and portions of structures (bents, abutments, wingwalls, etc.)

- Rough grade
 - Finish grade
- f. Monitor for settlement if required
- g. Global Positioning Satellite (GPS) equipment shall be made available if required by SANBAG

II. Grid Grades

Grid grade data shall provide pavement elevations at the station line, the left edge of pavement, the right edge of pavement, and the right edge of travel way at 25 foot intervals for travel lanes.

III. Open Ended Traverses and Profile Data Sheets

Separate open-ended traverse calculations and point maps shall depict plan data for station lines, utility lines, wall layout lines, and abutment/bent alignment. Specific information to be shown will be part numbers, coordinates, bearings, and curve data.

Profile data sheets are required for all profiles shown on the plans identifying vertical design elements such as grade, point of intersection (PI) location, beginning of vertical curve (BVC) location, end of vertical curve (EVC) location, and curve length.

IV. Three Line Profiles

Separate profile plots are required for the left edge of pavement, the right edge of pavement, and the edge of shoulder for all travel lanes.

V. Right of Way Lines

Existing right of way and easements will be established from Local Agency's record information and existing monumentation.

- Right of way monumentation shall be renewed and restored in accordance with Section 10.4 of the Caltrans "Survey Manual" and the State of California Land Surveyor's Act.
- Corner records and records of surveys shall be prepared and filed in accordance with the applicable standards and the State of California Land Surveyor's Act and the California Subdivision Map Act.
- Perpetuate existing monumentation.
Includes restoring, renewing, referencing, and resetting existing boundary related monumentation. In addition, stake areas where construction disturbs the existing right of way, preparing and filing required maps and records.

New right of way and easements will be established from plans, right of way maps, utility drawings, and Local Agency record information, and existing monumentation.

- **Right of Way Surveys**
Includes research and preparation filing of required maps and records. In addition, locate and set monuments for right of way and easement lines, staking for right of way and easement fences.
- **Final monumentation**
Includes setting of centerline points of control upon completion of construction.

VI. Special Design – Data Surveys

Includes drainage, utility, and surveys required for special field studies.

VII. Control Survey

Includes project control surveys, aerial mapping control surveys, horizontal and vertical control surveys. In addition control surveys will include restoration, renewal, reference, relocation, and resetting of existing control monumentation. The CONSULTANT will be required to provide horizontal and vertical control at the end of each bridge.

VIII. Topographic Surveys

Topographic surveys will normally be compiled by ground survey methods only. CONSULTANT will provide all necessary Project related surveys and construction staking, including horizontal and vertical control, right of way, and easements. CONSULTANT shall coordinate all staking and verify accuracy. CONSULTANT shall ensure timely coordination of all staking requests from the Contractor.

b. Materials Testing and Geotechnical Services

CONSULTANT will provide experienced personnel, equipment, and facilities to perform various construction materials sampling and testing. Laboratory and field materials testing will be used to ensure that structure and roadway construction work conforms to California State Department of Transportation (Caltrans) standards, specifications, and special provisions for material quality and workmanship.

All field and laboratory testing is to be performed in accordance with California Test Methods.

CONSULTANT will be responsible for the accuracy and completeness of all test data compilation and results.

c. Public Relations

SANBAG may retain a public relations firm to implement a public awareness program for the project. SANBAG shall coordinate public awareness for the project directly in conjunction with the local agencies. The SANBAG Public Information Officer (PIO) will manage all public awareness activities for these Projects. CONSULTANT shall cooperate with SANBAG's PIO and its public relations firm in the dissemination of appropriate Project information as appropriate. Should CONSULTANT Resident Engineer receive complaints from the public or other entities, he/she shall promptly notify SANBAG's PIO. CONSULTANT shall maintain a log of all complaints and inquiries. When appropriate, CONSULTANT shall direct the Contractor to remedy complaints in a timely manner.

d. Permits

CONSULTANT shall review the project for permit compliance and coordinate with SANBAG and the design engineer to ensure that necessary permits are obtained. CONSULTANT shall assist SANBAG in the coordination, timely processing and verification of approval for all permits. CONSULTANT shall maintain permits and permit documentation on site.

7. Cost and Schedule

a. CONSULTANT shall monitor and track the following:

1. Contract pay item quantities and payments
2. Contract change orders
3. Supplemental work items
4. Agency furnished materials
5. Contingency balance
6. Project budget

b. CONSULTANT shall review and monitor Contractor's schedule and inform SANBAG of any significant changes or deviations in the schedule.

c. CONSULTANT shall provide and maintain a Project staffing plan of field office personnel based on the Contractor submitted baseline schedule update. In cooperation with SANBAG, the staffing plan shall be periodically updated to reflect Project progress and needs.

8. Contract Change Orders and Claims

a. CONSULTANT shall receive and evaluate requests for changes and/or substitutions by the Contractor. Contract Change Orders submitted to SANBAG shall be accompanied by CONSULTANT recommendations. Where applicable, CONSULTANT shall convey proposed changes to design engineer, or other project consultants. If the requested changes are accepted, CONSULTANT shall negotiate and prepare appropriate Contract Change Orders.

- b. CONSULTANT shall attempt to avoid all unnecessary Contract Change Orders. When a Contract Change Order is necessary, CONSULTANT shall consult with SANBAG prior to its preparation. Unless directed otherwise by SANBAG, the preferred method of payment for Contract Change Orders should be as follows

- 1. Agreed Price
- 2. Adjustment in compensation to a bid item
- 3. Time and materials or Force Account

CONSULTANT shall perform force account analysis to validate cost submitted by the Contractor for contract change orders with agreed unit price, lump sum price, and adjustment in components. Analysis shall be based on realistic production and resource needs to complete the work.

- c. CONSULTANT shall attempt to identify all potential claims, track and monitor unresolved claims. The CONSULTANT shall implement appropriate claims avoidance processes where in the best interests of SANBAG as determined by SANBAG's Construction Manager.
- d. CONSULTANT shall assist SANBAG, as requested, in the identification, resolution, and final disposition of claims filed by the Contractor or third parties against SANBAG or the Project.

9. Safety

In addition to the requirements specified elsewhere in this contract, the following shall also apply:

- a. CONSULTANT shall implement and conduct a comprehensive safety program including regular tail-gate safety meetings for CONSULTANT personnel. CONSULTANT shall provide SANBAG with monthly status of safety reports.
- b. CONSULTANT shall comply with State of California Construction Safety Orders and provisions of the Caltrans Construction Manual.
- c. CONSULTANT shall provide appropriate safety training for all CONSULTANT field personnel.
- d. CONSULTANT shall provide all necessary safety equipment as required for CONSULTANT personnel.

10. Project Close Out

- a. CONSULTANT shall prepare a list of items to be completed and/or corrected by the Contractor for final completion of the Project.
- b. CONSULTANT shall collect and furnish as-built information to the design engineer for preparation of as-built drawings including pre-stress drawings and pile logs, as applicable.

- c. CONSULTANT shall review and verify completeness of as-built drawings.
- d. CONSULTANT shall conduct a final walk-through with SANBAG, Local Agencies, Contractors, and design engineers.
- e. CONSULTANT shall prepare final construction reports including the Project Completion Report.
- f. CONSULTANT shall prepare and deliver to SANBAG all project files.
- g. CONSULTANT shall assist SANBAG and Contractor in obtaining final release of all project permits.

D. DELIVERABLES

- 1. Inspector daily reports, extra work diaries and Resident Engineers' daily diaries.
- 2. Monthly Project Activity Summary Reports.
- 3. Monthly Contractor progress payments, back-up documentation, and Contractor payment records.
- 4. Contractor final payment documents, delivered to SANBAG no later than ten (10) working days after acceptance by SANBAG of the completed construction project.
- 5. Project Completion Report.
- 6. All project files, project reports, correspondence, memoranda, shop drawings, project logs, change order data, claims and claim reports, and Contractor payment records.
- 7. Certified payrolls and fringe benefit statements for all employees, CONSULTANT and Contractor, who are subject to the State and/or Federal prevailing wage rates.
- 8. All material test results will be provided in accordance with the applicable Standard Specifications and Special Provisions, and test methods. Failing tests will be immediately reported to the Resident Engineer or Structures Representative. All test results will be recorded on the appropriate forms. The test documents will be legible and show the identity of the tester where appropriate. A notebook containing all test results and reports will be maintained by CONSULTANT throughout the duration of the Project and delivered to SANBAG with the project files.
- 9. Unless otherwise specified in the survey request, the deliverables shall conform to the following:
 - a. Survey points, lines, and monuments shall be established, marked, identified, and referenced as required by survey request and requirements herein.
 - b. Survey notes, drawings, calculations, and other survey documents and information shall be completed as required by the survey request and the requirements herein.

- c. All original survey documents resulting from this contract, including original field notes, adjustment calculations, final results, and appropriate intermediate documents, shall be delivered to the Resident Engineer and shall become the property of SANBAG. A copy of all survey documents furnished by SANBAG shall be retained by CONSULTANT for future reference.

When the survey is performed with a total station survey system, the original field notes shall be a hard copy in a readable format of the data (observations) as originally collected and submitted by the survey party. The hard copy shall be signed by the Party Chief. If the Party Chief is not licensed, the person in "responsible charge" will be required to sign.

- d. Deliverables to the Resident Engineer shall follow the format specified below:
- Horizontal Control
 - Alpha numeric hard copy point listing with adjusted California Coordinate System northing and eastings and the appropriate descriptions.
 - Vertical Control
 - Alpha numeric hard copy benchmark listing with adjusted elevations compatible with the design datum.
 - Topography
 - Alpha numeric hard copy listing, hard copy drawing, and computer aided drawing and design (CADD) digital drawing. The CADD drawing shall be compatible with the systems utilized by Caltrans.

Data collection method used to collect cross-section data and the coding (feature description) of terrain data for cross-sections shall conform to the survey request requirements. Deliverables shall depend on the data collection method as follows:

1. Conventional Cross – Sections (each cross – section):
For each cross - section and alpha numeric listing, a hard copy drawing, and a computer formatted file compatible with the systems utilized by Caltrans.
 2. Terrain Line Interpolation Cross – Section Data (each terrain line interpolation survey):
Terrain line interpolation cross – sections shall include an alpha numeric listing, a hard copy plan view drawing of the terrain lines, and a computer input file. The computer input file shall be provided in a format compatible with the systems utilized by Caltrans.
- e. Data Collector Data
If specified in the survey request, the raw data from the data collector shall be provided in a format conforming to the survey request requirements
- f. Other

As specified in the survey request.

E. EQUIPMENT AND MATERIALS TO BE PROVIDED BY CONSULTANT

1. CONSULTANT shall provide all necessary equipment including software, materials, supplies, miscellaneous tools, and safety equipment required for its personnel to perform the services accurately, efficiently, and safely. Only those items listed in Attachment B, CONSULTANT Cost Proposal, shall be reimbursed by SANBAG.
2. CONSULTANT personnel shall be provided with vehicles suitable for the location and nature of the work involved. Vehicles shall be equipped with flashing yellow lights, either permanently or temporarily affixed.
3. CONSULTANT personnel shall be provided with a mobile radio, cellular phone, or other means to assure full-time communication. If a radio system is to be used, CONSULTANT shall provide a base station at the field office.
4. CONSULTANT personnel shall be provided with all applicable standard plans, specifications, and other standards as appropriate (see item G below).
5. For Materials Testing, CONSULTANT and its staff will be fully equipped at all times to perform the services required, including but not limited to the following:
 - a. An on-site mobile laboratory or laboratory in close proximity to the project will be required. The type and location of the lab should be such that it can meet the needs of the project in an efficient, time effective manner. The laboratory is to be fully staffed, equipped, and supplied to conduct all required soils, materials, and concrete breaking tests in a timely manner.
 - b. CONSULTANT's personnel will be provided with radios, mobile phones, or other means to assure full-time communication. CONSULTANT vehicles will have flashing lights, visible from the rear, with a driver control switch. Vans without side windows in the cargo area shall not be used. SANBAG furnished magnetic logos will be affixed to each side of the vehicle at all times the vehicle is being used for the work under this contract.

Each vehicle is to be fully contained with all necessary equipment and supplies necessary to perform the field sampling and tests required.
 - c. Field personnel will be provided with all necessary safety equipment to permit work to be performed safely and efficiently within operating highway and construction zone environments.
 - d. All equipment to be calibrated as per Section 3-10 and 3-11 of Caltrans' Quality Assurance Program Manual.
6. For construction surveying, CONSULTANT and staff shall have adequate equipment and supplies to complete the required survey work. Equipment and supplies shall, include, but not be limited to:

a. Survey vehicles:

Survey vehicles will be suitable to perform the required work in varying terrain and conditions encountered on the project. Vehicles shall be fully equipped with all necessary tools, instruments, supplies, and safety equipment required to perform the work accurately, efficiently, and safely. Vehicles shall be equipped with a flashing yellow beacon light.

b. Data Processing Systems:

Data processing systems shall include hardware and software to:

- Performing survey and staking calculations from the design plans and specifications;
- Reduce survey data collected with conventional and total station survey systems;
- Perform network adjustments for horizontal and vertical control surveys;
- Format survey data to be compatible with the Caltrans computer survey and data system.

c. Drafting equipment and supplies.

d. Digital calculators.

e. Hand tools as appropriate for the requested survey work.

f. Traffic cones (minimum 25). Traffic cones shall be 28 inches in height (minimum).

g. Traffic control devices as required to perform the requested survey work. Traffic control devices include signs, sign bases, flags, and hand held signs.

h. Leveling instruments and equipment:

- Self-leveling level. Precision: standard deviation in one mile of double run leveling 0.005 feet or less.
- Suitable level rods for the work to be performed.

i. Distance measuring instruments and equipment:

- Electronic distance measurer (EDM). Precision: standard deviation 3 mm plus 3 PPM, or less; Range: Minimum one mile under average atmospheric conditions.
- Prisms, sufficient to perform the required work.
- Tapes; steel, cloth.

j. Angle measuring instruments and equipment:

- Theodolite for non-control surveys; Precision: direct circle reading to three seconds, or equivalent, horizontal and vertical.
- Targets as required to perform the work.

k. When required for efficient survey operations, total station survey systems consisting of an electronic angle measuring instrument, EDM, and electronic data

collector shall be provided. The angle measuring instruments and EDM shall conform to the requirements for the equipment previously listed.

- l. Radio or cellular communications equipment for communication between field office and field crews.
- m. Caltrans manuals, standards, forms, and other policies and procedures to be followed to perform the required work.

F. MATERIALS TO BE FURNISHED BY SANBAG

1. SANBAG will provide copies of all Project construction documents including plans, special provisions, reports, designer prepared resident engineer files, and contracts.
2. SANBAG will provide copies of all previously secured permits and Project authorizations.
3. SANBAG will provide office space, telephones, desks, chairs, computers, and appropriate office equipment.
4. Appropriate forms for recording test data in accordance with Caltrans practices and procedures outlined in the "Manual of Test".
5. Magnetic SANBAG logos to be affixed to CONSULTANT vehicles.

G. STANDARDS

All construction inspection, surveys, materials sampling and testing, and contract administration shall be in accordance with the Project bid documents, special provisions, plans, and current Caltrans Manuals including:

1. Construction Manual and its revisions
2. Bridge Construction Records and Procedures Manual
3. Quality Assurance Program Manual
4. Manual of Traffic Controls for Construction and Maintenance Work Zones
5. Caltrans Standard Specifications and Standard Plans
6. Caltrans Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
7. Manual of Test (3 volumes)
8. Survey Manual
9. District 8 Standard Staking Procedures Manual

Work not covered by the manuals shall be performed in accordance with accepted professional standards.

Surveys performed by CONSULTANT shall conform to the requirements of the Land Surveyor's Act. In accordance with the Land Surveyor's Act, "responsible charge" for the work shall reside with the Licensed Land Surveyor or a pre-January 1, 1982, Registered Professional Civil Engineer in the State of California.

Unless otherwise specified in the survey request, control surveys shall conform to second order (modified) accuracy standards as specified in the Caltrans "Survey Manual".

Additional standards for specific survey work may be included in the applicable request for survey. Such standards supplement the standards specified herein. If additional standards conflict with the standards specified herein, the "Survey Request's" standard shall govern.

The Resident Engineer and SANBAG will decide all questions which may arise as to the quality or acceptability of deliverables furnished and work performed for this contract. Any CONSULTANT employee who does not perform adequately will be replaced if directed by the SANBAG Construction Manager.

H. AVAILABILITY AND WORK HOURS

The typical workday includes all hours worked by SANBAG's construction Contractor. The construction Contractor's operations may be restricted to specific hours during the week, which will become the normal workday for CONSULTANT's personnel. On days when work is not performed by the construction contractor, such as rainy or unsuitable weather days, CONSULTANT services will not be provided unless authorized by the SANBAG Construction Manager.

Unless otherwise directed by SANBAG, the normal work week will consist of 40 hours. From time to time, overtime may be required. However, overtime will be worked only when approved in writing by SANBAG.

I. LIMITATIONS TO AUTHORITY

CONSULTANT does not have the authority to:

1. Authorize deviations from the contract documents.
2. Approve substitute materials or equipment; except as authorized in writing by SANBAG.
3. Conduct or participate in tests or third party inspections; except as authorized in writing by SANBAG.
4. Assume any of the responsibilities of the Contractors, Contractors' Superintendent, or subcontractors.
5. Exercise control over or be responsible for construction means, methods, techniques, sequences, procedures, or safety precautions.

6. Communicate directly with subcontractors or material suppliers without the prior consent of the Contractor.
7. Verbally authorize or approve change orders or extra work for the Project.
8. Offer or receive incentives, inducements, or other forms of enumeration to or from the Contractor to perform services or work outside the terms of any executed contracts for this Project.

J. THIRD PARTY RELATIONSHIPS

This Contract is intended to provide unique services for a specific project. In the development of the Project, SANBAG has worked closely with various professional consultants, agencies, and others in the preparation of the construction documents and other Project related materials. SANBAG, however, is solely responsible for and will be the sole point of contact for all contractual matters related to the Project. CONSULTANT shall take direction **only** from SANBAG and shall regularly inform **only** SANBAG of Project progress, outstanding issues, and all Project related matters.

During the course of the Project, CONSULTANT may find occasion to meet with City or County representatives, the design engineer, Project consultants, or other third parties who have assisted with the Project. These entities may, from time to time, offer suggestions and/or recommendations regarding the Project or elements of the Project. While SANBAG enjoys a close relationship with and has considerable confidence in the capabilities of these other parties, CONSULTANT shall not act on any suggestions, solicited or unsolicited, without obtaining specific direction from SANBAG. All oral and written communication with outside agencies or consultants related to the project shall be directed only to SANBAG. Distribution of Project related communication and information shall be at the sole discretion of SANBAG representatives.

K. CONSTRUCTION SITE SAFETY

In addition to the requirements specified elsewhere in this contract, the following also will apply.

1. CONSULTANT will conform to the safety provisions of the Caltrans Construction Manual.
2. CONSULTANT's field personnel will wear white hard hats with proper suspension, orange vests with reflective tape, sleeved shirt, long pants, and leather boots with ankle support and rubber soled shoes at all times while working in the field.
3. CONSULTANT will provide appropriate safety training for all CONSULTANT's personnel, including work on and near highways.
4. All safety equipment will be provided by CONSULTANT.

L. BASIS FOR SURVEY AND MONUMENT STAKING

SANBAG will designate the existing horizontal and vertical control monuments that are the basis of CONSULTANT performed surveys. SANBAG will provide the California Coordinate System values and/or elevation values for these monuments. CONSULTANT shall adjust CONSULTANT performed surveys to be the designated control monuments and the values.

Monuments established by CONSULTANT shall be marked by CONSULTANT with furnished disks, plugs, tags. In addition, CONSULTANT shall identify CONSULTANT established monuments by tagging or stamping the monuments with the license or registration number of CONSULTANT'S surveyor who is in "responsible charge" of the work.

M. PERSONNEL QUALIFICATIONS AND RESPONSIBILITIES

The quantity and qualifications of field personnel to be assigned will be determined by the scope of the Project and the degree of difficulty of required tasks to be performed. All personnel and personnel assignments shall be subject to approval by SANBAG. While some areas of responsibility may overlap, as a guideline, CONSULTANT personnel assigned to the project shall have the following minimum qualifications:

1. Project Manager

Minimum qualifications shall be as follows:

- a. Six (6) years project management experience on similar construction projects.
- b. Accessible to SANBAG at all times during normal working hours.
- c. A thorough understanding of Caltrans construction practices and procedures.

The Project Manager will assume the following functional responsibilities:

- a. Review, monitor, train, and provide general direction for CONSULTANT personnel.
- b. Assign personnel to projects on an as-needed basis.
- c. Administer personal leave.
- d. Prepare monthly reports for delivery to SANBAG.

2. Resident Engineer

Minimum qualifications shall be as follows:

- a. Eight (8) years resident engineer experience on similar construction projects.
- b. Licensed Professional Civil Engineer in the State of California.
- c. Ability to work independently, make effective decisions concerning construction work in progress, and solve field problems.
- d. Accessible to SANBAG at all times including weekends and holidays.
- e. Thorough understanding of Caltrans field methods, practices, and construction office procedures.

The Resident Engineer will assume the following functional responsibilities:

- a. Monitor and provide daily direction to CONSULTANT Resident Engineers and inspection personnel.
- b. Assign field personnel to specific project tasks.
- c. Monitor and track Contractor progress.
- d. Prepare daily, weekly and monthly reports as required.
- e. Coordinate utility relocations with appropriate agencies and the utility inspector.
- f. Act as prime field contact between various project Contractors and SANBAG's Construction Manager.

3. Assistant Resident Engineer

Minimum qualifications shall be as follows:

- a. Four (4) years experience on similar construction projects.
- b. Licensed Professional Civil Engineer in the State of California.
- c. Ability to work independently, make effective decisions concerning construction work in progress, and solve field problems.
- d. Accessible to SANBAG at all times including weekends and holidays.
- e. Thorough understanding of Caltrans field methods, practices, and construction office procedures.

The Assistant Resident Engineer shall act under the direction of the Resident Engineer and will assume the following functional responsibilities:

- a. Monitor and provide daily direction to CONSULTANT inspection personnel.
- b. Assign field personnel to specific project tasks.
- c. Monitor and track Contractor progress.
- d. Prepare daily, weekly and monthly reports as required.
- e. Coordinate utility relocations with appropriate agencies.

4. Lead Field Inspector

Minimum qualifications shall be as follows:

- a. Six years (6) construction inspection experience in public works or similar

projects or a four-year degree in the field of civil engineering, transportation and four years of similar construction experience.

- b. Knowledge of Caltrans construction practices, physical characteristics and properties of highway construction materials, and approved methods and equipment used in making physical tests of construction materials.
- c. Ability to work independently, make effective decisions concerning construction work in progress, and solve field problems.
- d. Ability to direct the efforts of subordinate inspectors.
- e. Understanding of Caltrans field and construction office procedures.
- f. Ability to use an automatic level and transit for the purpose of verifying line and grade.

The Lead Field Inspector will assume the following functional responsibilities:

- a. Assist in inspections to assure compliance with contract plans, specifications, and special provisions on all phases of construction.
- b. Assist in the preparation of contract change orders, contract estimates, progress pay estimates, and other documents or reports required for the Project.
- c. Coordinate field testing of materials to monitor compliance with Project specifications and Caltrans Quality Assurance Program.
- d. Maintain accurate and timely project records. Perform quantity calculations for progress pay estimates.
- e. Perform analytical calculations such as basic earthwork, grading, profiles, and special staking procedures.
- f. Provide input for the redesign of facilities to fit existing field conditions.
- g. Monitor and track Contractor progress. Prepare daily, weekly, and monthly reports as required.

5. Field Inspector

Minimum qualifications shall be as follows:

- a. Two years construction inspection experience in public works or similar projects or a four-year degree in the field of civil transportation engineering.
- b. Knowledge of construction practices, physical characteristics and properties of construction materials, and approved methods and equipment used in making physical tests of construction materials.

- c. Ability to work independently. Ability to make minor decisions concerning construction work in progress and to solve field and office problems.
- d. Understanding of Caltrans construction methods and practices.
- e. Ability to use an automatic level and transit for the purpose of verifying line and grade.

The Field Inspector will assume the following functional responsibilities:

- a. Assist in inspections to assure compliance with contract plans, specifications, and special provisions on all phases of project construction.
- b. Assist in preparation of contract change orders, contract estimates, progress pay estimates, and other documents or reports required for the Project.
- c. Coordinate field testing of materials to monitor compliance with Project specifications and Caltrans Quality Assurance Program.
- d. Perform quantity calculations for progress pay estimates and maintain Project records.
- e. Perform analytical calculations such as basic earthwork, grading, profiles, and special staking procedures.
- f. Provide input for the redesign of facilities to fit existing field conditions.
- g. Perform construction materials sampling
- h. Perform labor compliance interviews of the Contractors' personnel.

6. Structural Representative or Lead Structural Inspector

Minimum qualifications shall be as follows:

- a. Six (6) years of bridge or structural construction inspection as related to major public works projects and a four-year degree in civil engineering.
- b. Licensed Professional Civil Engineer in the State of California.
- c. Knowledge of stress analysis, structural mechanics, and strength of materials.
- d. Knowledge of Caltrans construction practices and the physical characteristics and properties of various bridge construction materials including concrete.
- e. Experience in the following areas: foundations, pile driving, concrete prestressing, bridge deck construction, cast-in-place and MSE walls construction, falsework, and shoring.
- f. Ability to work independently. Ability to perform duties in the construction field

office and effectively make decisions concerning construction work in progress and solving field problems.

- g. Ability to direct the efforts of subordinate inspectors.
- h. Ability to use an automatic level and transit for the purpose of verifying line and grade.
- i. Thorough understanding of Caltrans field methods, practices, and construction office procedures.

The Structural Representative shall assume the following functional responsibilities:

- a. Assist in inspections to assure compliance with contract plans, specifications, and special provisions on all phases of structural construction such as bridges, foundations, walls, falsework, shoring, and drainage structures.
- b. Make grade, alignment, quantity, falsework, and shoring calculations.
- c. Assist in the preparation of contract change orders, contract estimates, progress pay estimates, and other documents or reports required for the Project.
- d. Coordinate the sampling and testing of construction materials to monitor compliance with contract specifications.
- e. Monitor and track Contractor progress. Prepare daily, weekly, and monthly reports as required.
- f. Coordinate with Resident Engineer, as well as the Construction Staking and Material Testing consultants.
- g. Direct subordinate inspectors.

7. Structural Inspector

Minimum qualifications shall be as follows:

- a. A minimum of two (2) years of bridge design or structural construction inspection as related to Caltrans or major public works projects or a four-year degree in civil or structural engineering.
- b. Knowledge of stress analysis, structural mechanics, and strength of materials.
- c. Knowledge of construction practices and the physical characteristics and properties of various highway bridge construction materials including concrete.
- d. Experience in one or more of the following areas: pile driving, concrete prestressing, bridge deck construction, retaining wall construction, falsework, and shoring.

- e. Ability to work independently and make minor decisions concerning construction work in progress and to solve field and office problems.
- f. Ability to use an automatic level and transit for the purpose of verifying line and grade.

The Structural Inspector will assume the following functional responsibilities:

- a. Assist in inspections to assure compliance with contract plans, specifications, and special provisions on all phases of structural construction such as bridges, foundation, walls, falsework, shoring, and drainage structures.
- b. Make grade, alignment, quantity, falsework, and shoring calculations.
- c. Assist in the preparation of contract change orders, contract estimates, progress pay estimates, and other documents or reports required for the Project.
- d. Sampling and testing of construction materials to monitor compliance with contract specifications and Caltrans Quality Assurance Program.

8. Office Engineer

Minimum Qualifications shall be as follows:

- a. Two years (2) office engineering on similar construction projects.
- b. Knowledge of Caltrans Office of Highway Construction forms used to administer construction projects.
- c. Knowledge of Caltrans system of document organization.
- d. Knowledge of construction records and accounting procedures.
- e. Knowledge of documentation, procedures, and reporting for federally funded projects.
- f. Knowledge of laws and regulations governing the payment of prevailing wages.

The Office Engineer will assume the following functional responsibilities:

- a. Process monthly progress pay estimates, monthly status reports, extra work reports, and weekly statements of working days.
- b. Prepare and process contract change orders.
- c. Monitor construction budget and schedule.
- d. Prepare, maintain, and/or file project documents including labor and equipment records, correspondence, memoranda, meeting minutes, claims, personnel records, labor compliance reports, and daily, weekly, and monthly reports.

- e. Perform routine calculations and checking of quantities.
- f. Coordinate all office activities and functions with SANBAG representatives.

9. Materials Testing Project Manager

- a. Four years project management experience on a similar highway/bridge construction project.
- b. Licensed civil engineer in the State of California.
- c. Ability to use typical computer programs including word processing and spreadsheets.

The materials testing project manager will assume the following functional responsibilities:

- a. Review, monitor, train, and provide general direction for CONSULTANT's laboratory and field personnel.
- b. Assign personnel to projects on an as-needed basis in coordination with the Resident Engineer.
- c. Administer personal leave, subject to approval of the Resident Engineer.
- d. Prepare monthly reports for delivery to the Resident Engineer.
- e. Provide direction, administration, and responsibility for Materials Certification per Caltrans Construction Manual, Section 8-01.

Material testing personnel will be certified by a California Registered Civil Engineer as being experienced and competent in the test procedures required for the work involved (and possess a current certificate of proficiency (Form MR-0111) in accordance with Quality Assurance Program Manual (Section 3-5). Independent certification of Caltrans test procedures may be performed at the discretion of the SANBAG Construction Manager.

10. Materials Technicians

CONSULTANT personnel provided under this contract will have a variety of skills and experience appropriate for the level of tasks to be assigned. Field personnel shall be certified by Caltrans and will have a minimum of two years experience in conducting material sampling and testing of the type required for the projects involved and will possess the following additional capabilities:

- a. Have the ability to establish specific locations for appropriate tests when construction contract administration personnel are not available.
- b. Be familiar with construction practices and be fully aware of construction activities at the project site.

- c. Have knowledge of and comply with safety and health regulations and requirements applicable to the project.

Specific qualifications for technicians are as follows:

CONSTRUCTION TECHNICIAN I

Performs a variety of semi-skilled activities.

Examples of duties assigned to this classification are:

- Conducting quality control tests such as soil densities, sieve analysis tests, operation scales and inspecting spread operations.
- Sampling and transporting produced construction materials from point of application or production to testing laboratory.

Knowledge and Skills Required

- Knowledge of tools, equipment and vehicles utilized in construction.
- Knowledge of standard equipment and materials used for the sampling and testing of construction material.
- Knowledge of basic mathematics used in the computation of a variety of construction items.
- Knowledge of record keeping, preparing of documents and reports.

TECHNICIAN II

Performs a variety of skilled activities

Examples of duties assigned to this classification are:

- Inspecting minor construction items, sampling and inspection of steel reinforcement, sampling and inspection of concrete placing operation.
- Collect and analyze soil samples of construction materials to determine compaction and moisture content.
- Inspection and sampling of all phases of asphalt concrete and PCC paving operation, including plant inspection.
- Confers with construction engineers and contractors regarding construction in progress and is conformance to specifications and construction plans.
- Answers questions and resolves problems.
- Inspects construction in progress to ensure conformance with specification, agreements, and established requirements.
- Keeps daily diary of work progress.
- Prepares reports on all field inspections and submits project quantities on a daily basis.
- Keeps accurate documentation for force accounts and possible claims.

Knowledge and Skill Required:

- All knowledge and skills required of lower classification.
- Knowledge of currently accepted methods, procedures and techniques used in highway construction inspection, survey, materials testing, and quality control equipment.
- Skill in interpersonal relations as applied to contact with contractors, representatives of other governmental jurisdictions, and other SANBAG/Caltrans staff.

TECHNICIAN III

Exercise considerable independent judgment within general Caltrans standards and guidelines.

Examples of duties assigned to this classification are:

- Inspect project construction on an ongoing basis to assure compliance with contract and in accordance with State and local standards.
- Perform a variety of structural material tests and inspections.
- Reviews construction plans and verified that these are in accordance with designated specifications and other requirements.
- Participates in the preparation of completed work estimates, to calculate compensation due contractor.
- Examines and verifies numeric data and material specifications on project cost source documents, utilizing geometry and trigonometry calculations.
- Supervises all work activities involved in construction projects, laboratory, and quality control work.
- Recommends approval of proposed project changes.

Knowledge and Skills Required:

- All knowledge and skills required of lower classifications.
- Knowledge of the principles and practices of Civil Engineering as applied to the construction of state highways.
- Skill in analyzing and evaluating a wide variety of highly technical engineering data, including construction plans, field survey and quality control documents.
- Skill in interpreting and implementing Caltrans standards, policies, procedures and regulations.
- Skill in interpersonal relations, as applied to contacts with contractors, representatives of other governmental jurisdictions, and other SANBAG/Caltrans staff.

11. Construction Surveying Project Manager

Minimum qualifications for the position of Project Manager shall be as follows:

- Four (4) years project management experience on similar construction projects.
- Licensed Surveyor or pre-January 1, 1982, Registered Professional Engineer in the State of California.
- Accessible to the Resident Engineer and SANBAG at all times during normal working hours as specified in this Scope of Services.

Under the direction of the Resident Engineer, the project manager will be responsible for:

- Review, monitor, train, and provide general direction for CONSULTANT survey personnel.
- Assign personnel to projects on an as-needed basis.
- Administer personal leave, subject to approval of the Resident Engineer.
- Prepare monthly reports for delivery to the Resident Engineer.

12. Field Party Chiefs

- Minimum qualifications for the position of Party Chief shall meet at least one of the following licensing requirements:
 1. A licensed Land Surveyor in the State of California.
 2. A pre-January 1, 1982, Registered Professional Civil Engineer in the State of California.
 3. An experienced surveyor who serves as chief under the direction or supervision of a person who is a licensed Land Surveyor or pre-January 1, 1982, Registered Professional Civil Engineer in the State of California. The direction or supervision shall place the supervisor in "responsible charge" of the work. "Responsible Charge" is defined in Chapter 15 of the Business and Professions Code (the Land Surveyor's Act) and Title 16, Chapter 5, of the California Administrative Code (regulations adopted by the Board of Registration for Professional Engineers and Land Surveyors).
 4. Two (2) years survey experience on similar construction projects.
 5. Thorough knowledge of construction survey practices and the ability to read and interpret plans and specifications.
 6. Ability to make effective decisions concerning field problems and work in progress.
 7. Familiarity with typical coordinate geometry computer programs.
 8. Familiarity with safety requirements for surveying near traffic.

The Party Chiefs will assume the following responsibilities:

- Perform construction staking services for project construction.
- Administer day to day activities for the survey party.
- Perform analytical survey calculations for items such as grading, horizontal and vertical control, right of way, and minor in-field design.
- Maintain continuous communication with the Resident Engineer, field personnel, and construction administration staff.

13. Survey Crews

Minimum qualifications for survey crew members shall be as follows:

- One (1) year survey experience on similar construction projects.
- Fundamental knowledge of construction survey practices and the ability to read and interpret plans and specifications.
- Ability to assist Party Chiefs and office personnel in all required surveying work.

- One survey crew member must have the ability to assume temporary leadership of the survey party in the absence of the Party Chief.

Under the direction of the Resident Engineer and the Party Chief, the survey crew members will assume the following responsibilities:

- Perform basic calculations to support construction staking.
- Maintain continuous communication with Party Chiefs and office personnel.